

Ottawa (OGS)
Feb 86 8602



The Ottawa T.I.99/4A Users' Group



VOLUME 5 NUMBER 02.....FEB 1986

C o n t e n t s

NEXT MEETING....

THURSDAY the 6th of March, starting at 7:30pm
at the Merivale High School, 1755 Merivale Road in
Nepean.

EXECUTIVE NOTES....

DONATIONS of double sided disks to copy BOB BOON'S
LIBRARY will be gratefully accepted. Lets get this
before he gets transfered. This could happen in the
next year or two

FEATURE ARTICLES....

PRIOR NEWS by Bob Boone...A LOOK AT MEMORY by A GREEN
CHAIRMAN'S TWO CENTS WORTH.....PROGRAMS IN 40 COLUMNS
by MICHEL JOHNSON...FREEWARE LIST from the LA 99'ers.

DEADLINE....

The 15th of MARCH is the cutoff date for
submissions....PLEASE Try to be on time.

P.O. BOX 2144, STATION D, OTTAWA
*** ONTARIO, CANADA K1P 5W3 ***

February at Mr. Diskette

The magic of 1986 continues at Mr. diskette, as this month we offer not only more savings but more service as well.

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XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X                               X
X   Mr. Diskette's             X
X   super value coupon         X
X                               X
X   Free with any purchase     X
X   one Mr. Diskette           X
X   See - 10                   X
X                               X
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

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Whether you're in to buy or browse, we're here to help. If you want something that you don't see, just ask one of our salespeople, and if possible, we'll meet your needs.

Watch Us for the Best Prices in Town

Remember, we're in this business for you too. In our continueing efforts to serve our adoring public, we can now offer the services of our repair centre. Tell your friends that their dead computers are not beyond hope. Bring them down to Mr. Diskette and we'll see what we can do with them. For reasonable rates and quality service, come to Mr. Diskette.

Come in and See...

Panasonic 455 disk drives ... \$179.00
Mr. Diskette DS/DD diskettes ...\$17.99

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XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
X                               X
X   Mr. Diskette               X
X   coupon                     X
X                               X
X   $2.00 OFF on your          X
X   next box of DS/DD         X
X   diskettes                 X
X                               X
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

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See you APRIL 26th, at the upcoming T.I. Show

HEAD OFFICE:	119 O Connor St Ottawa, Ontario K1P 1M4 (613) 232-5203	148 Colonnade Rd. Nepean, Ontario K2E 7J5 (613) 727-0180
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HOTLINE NUMBERS

The executive has expressed a desire to assist all members should you have some problems or have some questions, do some library swapping or borrow a book. This will be the place to look. Of course if you wish to be placed on the list just give me a call...I know there is a lot of expertise within our Group. I hope to add to this list and improve the coding. Please respect normal hours unless you specifically know that someone doesn't mind a call at 3am or use the BBS to leave a message at 738-0617, 24 hours a day, 7 days a week.

BERRY MINUK.....CHAIRMAN...TUTORIALS,ASL,B,F,XB..... (M) 234-5472
 JANE LAFLAMME.....V/CHAIRMAN.RECORDS,Lb,Lc,Ls,MBX,Mwp,B.. (M) 837-1719
 BILL SPONCHIA.....P/CHAIRMAN..TUTORIALS,B,Ls,XB..... (M) 523-0878
 DENNIS DENNY.....TREASURER..... (M) 596-0276
 CAROL LECOURTOIS..SECRETARY..... (M) 824-5591
 BOB BOONE.....NUAC CO-ORD..UG CO-ORD,CC,I,Ld,Ls,S,SS.... (M) 623-7841
 PETER ARPIN.....CO-SYSOP.BBS..... (M) 523-0017
 BENOIT TANGUAY..CO-SYSOP..ASL,MBX,Mmp..... (M) 830-1718
 MARG. O'CONNOR..EDITOR.....NEWSLETTER..... (M) 833-2626
 TONY HOPKINS..ADVERTISING..BUSINESS,Lb,Ld..... 746-4463
 SHAWN MILLAR...YOUTH CO-ORD.SCORES..... (M) 684-3466
 MAURO TOMIETTO.LIB.CHRMN..DTIUG SOFTWARE,Ls..... (M) 230-3535
 LLOYD GALENZOSKI.MEMBER/CHRMN.MEMBERSHIPS..... (M) 830-1522
 ART GREEN.....ASL..... 837-1955
 PAUL LECOURTOIS...TIBBS CO-ORD..... (M) 824-5591
 JEAN-PIERRE MORIN.....F,..... 729-4579
 DICK PICHE.....TECK..... (M) 521-8667
 TOM BENTLEY.....TURBO DATAMAN..... 230-2929
 TONY DOMEVSKI..*TEXAS INSTRUMENTS GEOPHYSICAL SERVICES*.416-884-9181
 HARDWARE AND SOFTWARE REPAIR DEPOT IN RICHMOND HILL (TORONTO)

SOFTWARE:::ASL=ASSEMBLY LANGUAGE
 B=BASIC
 F=FORTH
 L=LOGO
 Lb=BOOKS/MAGAZINES
 Lc=CASSETTE LIBRARY
 Ld=DISK LIBRARY
 Ls=U/G SOFTWARE SALES

Mp=PLATO
 Mea=EDITOR ASSEMBLER
 Mmm=MINI-MEMORY
 Mmp=MULTIPLAN
 Mwp=TI WRITER
 S=SALES
 XB=EXTENDED BASIC

HARDWARE:::BBS=SYSTEM OPERATOR
 CC=CORCOMP EQUIPMENT
 I=INSTALLATION
 M=MODEM EQUIPPED

MBX=VOICE RECOGNITION
 MY=MYARC EQUIPMENT
 R=REPAIRS
 SS=SALES

EDITOR'S NOTES

by Marg O'Connor

Thanks again goes out to Mel Taggart for his donation of a hodaday at his Moosehead Lodge as the prize for the membership drive which was won by Philip Hawtrey.....Congratulations Philip.

Bob Boone will show us the new German Extended Basic Module at the March meeting. We had a preview at the executive meeting and found it a beautiful module to use. So come out and see what great things are happening for our TIs.

Don't forget to get out and support the club on March 8th when Lloyd Galenzoski and others are putting on a Demo of some TI units and what they will do. It will take place at:

PLACE D'ORLEANS
MARCH 8TH
starting at 10 a.m.

Place d'Orleans is easy to find. Take the Queensway east to Champlain St. Orleans and you are there.

Start thinking of some new programs as the Executive is planning another contest, such as was held last year, for the June meeting. You will be hearing more of this as plans develop. Last year we had great response to this contest and some very good programs were submitted with very nice prizes. The prizes for this year have not been chosen yet but I am sure they will be just as exciting.

I must appologize for misleading some of the members last month, as to Bob Boone's transfer away from Ottawa, I had meant that as Bob is in the military he is bound to be transferred sooner or later and that when he goes his library goes with him. He has kindly offered to let us copy the library for the club and as there are about 500 disks so we are going to need disks to do the job. As you can see this is a very big job, but one that will benifit the whole club.....so even if you feel you can only afford one disk.....its a help and will be eccepted with thanks.

Bill Sponchia is, with others, looking after the copying and will accept any disks you can donate. Since Bill teaches on Thursday evenings, Berry Minuk will accept disks at the meetings and get them to Bill. Bill or Berry will eccept a cash donation in lieu of disks, if you would rather give this way.

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*****
*                                     *
*                   TRADING POST     *
*                   -----          *
*                   FOR SALE         *
*                                     *
*   TI SYSTEM.....2 CONSOLES, PERIPHERAL BOX, 1 DISK DRIVE *
*   DISK CONTROLER, RS232, 32K CARD, PARALLEL PRINTER CABLE, *
*   EX BASIC,MULTI PLAN TI WRITER, PERSONAL RECORD KEEPER, *
*   PLUS VARIOUS SOFTWARE.....TOTAL $800. OR WILL SEPERATE. *
*   CONTACT.....DOUG MACDONNALD...AFTER 6.PM.....230-9769 *
*                                     *
*   TI CASSETTE SYSTEM.....EXPANDED MEMORY, EX BASIC, *
*   LOGO II, PLUS CASSETTES.....CONTACT MALCOLM CAMPBELL.... *
*   .....HOME...828-4231.....WORK...521-1630 *
*                                     *
*   TI CONSOLE, EXPANSION BOX, DISK CONTROL, 1 DISK DRIVE, *
*   AND SOFTWARE.....CONTACT...CLAIRE DONNELLY..... *
*   .....HOME...824-8025.....WORK...992-5635 *
*                                     *
*                   WANTED           *
*                                     *
*   STAND ALONE PARRELL PRINTER INTERFACE..... *
*   ...CONTACT JACK MCALLISTER.....AFTER 6PM...225-6989 *
*                                     *
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CHAIRMAN'S TWO CENTS WORTH

We are now well into the new year and it will soon be spring and the time for our first TI-Faire. Keep the date open and if you have any time to give please phone Jane as this project will require the assistance of as many members as we have. In addition to our Faire in April there will be a TI fair in New Jersey on March 15 at which time Lou Phillips of Myarc has promised to release the new TI compatible computer. We are making arrangements for any of our members who want to attend. There will be more details at the next meeting.

At our last meeting we had a demonstration of TURBO DATAMAN which is an improved version of the DATAMAN which we saw about a year ago. The new version requires the 32k memory expansion but adds many Assembly routines and is therefore much faster. In addition it has some new features. This program is produced right here in Ottawa and one of our own members, Tom Bentley is a co-author. The demonstration was very successful and many copies were sold at a reduced price of \$20.00. I am certain that if you missed the meeting you can still obtain a copy from Tom and Doug at the special price.

We have now set up the schedule for the remaining meetings for this season and they should be very information filled for all. The March meeting will see a demonstration of the new Extended Basic Module from Mechatronics in Germany. This module does not require a 128k card like the one from Myarc but it adds over 60 commands to the present module and 40 of them are for bit-mapped graphics. Unfortunately, not all of the commands are available on an unexpanded machine. Bob Boone who will put on the demo estimates that the Canadian price will be \$125.00.

The March meeting may also include a demo of the new Myarc Extended Basic Module (if available) and Version II of TI-Artist. If there isn't enough time these may be demoed at the April meeting at which some of the new cards for the TI expansion box will be shown. So far we should have for April the New Horizons RAM disk card, the Cor-Comp Triple Tech card and the new Myarc 128K card. There may also be some new software to show as well.

The May meeting will feature our 2nd annual rummage sale. That way you can sell all the old stuff that you replaced with new products at the Faire on April 26. The final meeting of the season in June will feature our annual programming contest so you can start thinking about preparing your programs now so that they will be ready for entry in the contest. Further details will be released once the categories have been decided upon.

At the last meeting I raised the idea of raising money from the group so as to send some money to Freeware authors since I know that many of us never get around to doing it on our own. The Executive decided to put the idea to the test and we will be collecting for the following programs at the next 3 meetings:

March	Clint Pulley for 'c'
April	Danny Michaels for Neat List
May	Paul Charleton for Fast Term

One other point I would like to mention is the Hardware problem. As you know Dick Piche is in charge of seeing that sufficient Hardware is on hand at the meetings for all demos, etc. It would make his task much easier if each of you would contact him to volunteer. That way you could pick your own date and you would never have to bring equipment more than once a year. Please phone him or speak to him at a meeting.

The Basic and Extended Basic Tutorials have started at the Merivale High School every Tuesday at 7:30pm. Call Bill Sponchia or Mike Marcotte for further details. And the Forth and Assembly Tutorials are continuing on alternate Tuesdays. See the schedule below or Jean-Pierre Morin or myself for details.

We are also trying to organize some more workshops on various topics and if have any suggestions or wish to volunteer to run one

please contact me or anyone else on the executive. We are always glad to hear from any member about any topic.

To continue with our listing of our other Tutorials and Workshops and try to keep up to date on them the Schedule for the future is as follows:

<u>Date</u>	<u>Event</u>	<u>Time and Place</u>
Tues Feb 25	Assembly Tutorial	7:30 M.H.S.
Tues Mar 04	Forth Tutorial	7:30 M.H.S.
Fri Mar 07	C Workshop	Peter Arpin's
Tues Mar 11	Maximem Workshop	To be announced
Tues Mar 18	Assembly Tutorial	7:30 M.H.S.
Tues Mar 25	Forth Tutorial	7:30 M.H.S.
Tues Apr 01	Assembly Tutorial	7:30 M.H.S.

For further details you can phone me at 234-5472 or 996-1371 (work) or Jean-Pierre Morin at 994-3425(work).

See you at the March meeting where further details on all of the above workshops will have their final dates and places announced. Remember to renew your membership if you haven't done it yet.

Try to bring a prospective member to the next meeting.



OUR SALES
STAFF IS
USER
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2121 CARLING

729-0448

" WE CONTINUE TO SUPPORT THE TI-99/4A "

OUR SALES
STAFF IS
USER
FRIENDLY

OPUS 55/DD 2 FOR 2.88

CLEARANCE SALE

Our distributor has decided to clear out his remaining stock of TI SOLID STATE CARTRIDGES. So they have slashed prices again in an effort to clear their inventory. Titles such as "The Attack", "Zero Zap", and "Tombstone City 21st Century" and all the remaining Educational Titles are going for the low price \$ 5.88.

ATARI SOFT TI-99/4A TITLES

* PROTECTOR II * PAC MAN * MS. PAC MAN * DIG DYG
* SHAMUS * MOON PATROL * CENTPEDE * JUNGLE HUNT
ALL \$ 19.88

WE CARRY
SHARP
BIN/OCT/HEX
CALCULATORS

WE CARRY
SHARP
BIN/OCT/HEX
CALCULATORS

*PRIOR PATTERNS

By Bob Boone

The TI-99/4A world is more alive now than it ever was before...new to us but Old Hat to our European users...The Faires; where, when and sometimes why...Only one Suggestion?!?...Wild rumors...

Chicago, bless their pea-pickin' hearts, showed the world, and the world(at least the TI World)sat up and noticed. There are three major Faires/Fests in the works this spring, including ours; but more on these later...

Craig Miller has announced plans to publish another Summer Catalog this year with an even bigger and more comprehensive dealer and User Group listing.

Terrie Masters(President of the LA 99ers; Dr. Ron Albright(author of Orphan Chronicles) and a few other nationally known 99ers have announced plans to create a non-profit User Group Network, whose main purpose in life will be to promote good software; whether PD, fairware or commercial. They plan to distribute video and audio tapes of authors demonstrating their software and thereby gain a national audience for programmers that have hitherto had only local recognition. In addition to tapes they'll also publish a bi-monthly newsletter of impartial, fair software reviews. Its definately the sort of thing I think we should get involved in, and as soon as possible.

From Germany...a company by the name of MECHATRONIC has arranged to market some new TI hardware here in our neck of the woods. I think its great news for all concerned. A new version of Extended basic, licenced by TI and enhanced with many additional graphics commands(60 new ones!) has been introduced by this company. Its called Extended Basic II Plus and is available now for \$125 CDN. The list of products already developed or under development by this company reads like a common wish book for our systems...

128K internal RAM card!
128K stand alone, Ramdisk/Print Spooler with printer port!
A Mouse with an Icon driven graphics program! An Eprommer!
128K Gram card for the PEB(like GramCracker)
Extended Basic II Plus!
TI-Intern...a book with ROM, GROM and GPL listings! and an 80 Column card(March 1986)! For more information on these and the many other new products coming on the market, come out to the meetings and all you gotta do then is ask!

The aforementioned Terrie Masters and her LA-99ers are sponsoring 99-Fest West, a 2 day gala event on the 1st and 2nd of March. I wish there was some way to get there. Both Craig Miller and Lou Phillips are expected to wow the TI world at this show. Several of us were lucky enough to meet Terrie Masters at the Faire in Chicago and we can assure you that this will be an event we'll regret missing for a while to come. The organizers are offering reduced rates on Air, Hotel and tour rates for all interested in going...

A scant 2 weeks after that one the East coast(9 New Jersey/New York user groups)are jointly sponsoring another biggy. We'd like to take as many Canadians as possible to this one and if numbers warrant it we'll look at renting a large van or chartering a bus. Consider it seriously and let us know if you can make it. If we make a big enough splash down there we'll no doubt draw some of them to Ottawa for our Fest in April. We will not be operating a booth in New Jersey although our freeware will be available there; so we'll probably even have an opportunity to see the show this time!! Its not as long a trip as the one to Chicago was and we that went there thoroughly enjoyed ourselves in all aspects of the trip. Why not go?

Our Fest, set for April the 26th is the 3rd big one this Spring and with your approval of the provisional budget at the meeting last night, and pointers we'll get at the Hamilton Mini-Faire and the New Jersey one too, I feel confident we'll do ourselves proud. Jane will have lots more to say about OUR National TI-Fest elsewhere in this issue. I'd like to thank those that volunteered their help at the meeting last night and those of you, who haven't yet; but will offer to lend a hand. Thanks too for quick and unanimous approval of that mammoth budget!

I was some disappointed that there was just one slip of paper in my suggestion box when I got home last night. Anybody got any suggestions as to what went amiss this month...? Ted Starr was the intrepid soul that actually made the effort to help his club with the following suggestion:

'Why not reduce the newsletter in physical size (and possibly, thereby allow us to add pages) as is done often with other hobby newsletters?' I'd vote about 60-40 for this proposal Ted ((ie: I like it more than I dislike it)). My eyes are good though; other peoples eyes often have trouble with small print...and we do want our newsletter to be comfortable reading for all. The main reason I don't like the idea is that its hard to file them away in a binder for safekeeping. You're executive looked long and hard at the possibility of going the route of the 'reduced look' very early and on balance decided against it. We may eventually have no alternative though, so we'll certainly keep your proposal in mind. Maybe the figures you've offered to show us about your ShortWave Radio Club Bulletin will convince us quicker...we'd be interested in seeing them.

Thanks very much for your suggestion and your offer.

Wild rumors that I'm about to be posted away, have so far, thank gosh been unfounded. There is a very good chance it may happen in 1987 though so don't hesitate to contribute what you can to the project of duplicating my software library.

Till next month...keep on TIing.

FREEMWARE list - continued from Jan.

As best we can ascertain, this list contains most of the FREEMWARE available for the TI 99/4A as of Oct. 1985. It has been culled from the newsletter exchange, with most of it from the LA 99'ers Topics.

As explained many times, if you use and like the program, send a contribution to the author. If we do not have it in the library, send a blank disk, return postpaid mailer, and some small money to cover the author's time and trouble making the copy, and follow up with the requested contribution if you find it useful. A plus sign before the name means we have it either in the Lending Library or it is available on request from Steve McCalla.

TRIVIA99er - by Robert Wessler; 4300 Frazier, Forth Worth TX 67115. A TI version of the famous game.

TOMB OF DEATH - by John Behnke, 5755 W Grace, Chicago IL 60634. A new game developed for use with the Tunnels of Doom module. New spells, monsters, weapons, graphics, etc. \$8.00 on cassette o disk. Documentation an additional \$8.00.

WEATHER FORCASTER - by Gary Cox, 3174 Melbourne, Memphis TN, 38127

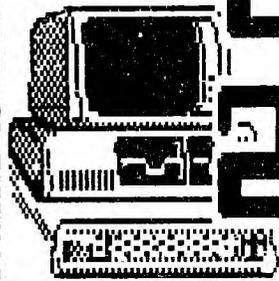
DSKLABEL -by Joseph Bartles, 116 S&E Trailor Ct., Parish NY 13131. Uses standard 15/16 x 3.5 label or plain paper. Label holds 21 program names and the ability to control type of program listed.

DSKJACKET- by Joseph Bartles, see above, Prints lines to glue together your own disk jacket with disk catalog on the front

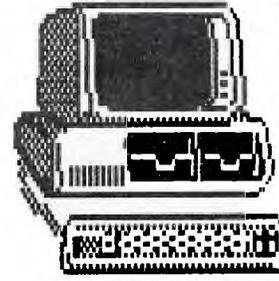
PRINTED MATERIAL ONLY:

TI Writer Companion - by Bill Browning, 7541 Jersey Ave North, Brooklyn Park, MN 55428. 29 pages 3-hole punched, crammed full of tips and ideas for getting more out of TI-Writer. New Price. \$6.50 (Ed note: And very well worth twice that!!)

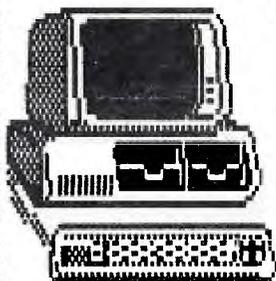
99 TIPS FOR THE 99/4A - Central Iowa 99/4A UG, attn John Hamilton, Pres. box 3043 Des Moines, IA 50316. \$4.50. Includes a disk map, tips, hints, peeks, pokes, sorts, etc.



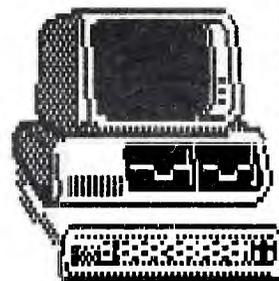
Exceltronix
230-9000



SA-455 0500
\$139.00



4164 ram
\$1.79



A LOOK AT MEMORY by R. A. Green

In this article we will have a look at the memory system of the TI 99/4A. You have all heard the terms: ROM, GROM, GRAM, RAM used constantly in conversations at the Users' Group meetings. Maybe you are confused by all this jargon, or are not quite sure what they all mean. I hope things will be clearer by the end of this article.

To begin, there are three different kinds of memory in the TI. They are: (1) CPU memory, (2) Video Display memory, and (3) Graphics memory.

CPU memory is the most important -- it's the only memory that belongs to the 9900 microprocessor (the CPU). All machine language programs must be in CPU memory before they can be executed by the CPU.

Video Display memory is the memory used mainly to generate the TV picture. It belongs to the Video Display Processor (VDP). Video Display memory cannot be accessed directly by the CPU. The CPU must ask the VDP to fetch or store bytes in the Video Display memory.

Graphics memory is the memory where the Graphics Programming Language (GPL) programs are stored. Like the Video Display memory, Graphics memory cannot be accessed directly by the CPU. The CPU must ask for bytes to be fetched or stored one at a time. This type of memory is unique to TI. I assume it was intended to help prevent -- dare I say it -- pirating.

Now we have looked at the three kinds of memory in the TI 99/4A. Each of the three kinds of memory could exist in two forms: (1) READ ONLY, which cannot be destroyed, and (2) READ WRITE, which can be changed.

Now, we have a small problem with terminology. Originally, in the computing field, RAM meant Random Access Memory, however, since the advent of micro/home computers the term has come to mean Read/Write Random Access Memory. The term ROM is used for Read Only Random Access Memory.

We have taken a few steps along the way to understanding and now is the time for a little table to organize our thoughts.

#	OWNER	TYPE	COMMENT
1	CPU	ROM	read only
2	CPU	RAM	read/write
3	VDP	ROM	read only
4	VDP	RAM	read/write
5	GRAPHICS	ROM	read only
6	GRAPHICS	RAM	read/write

Oops! In the TI 99/4A there is no VDP ROM, although there could be. It might be used to hold the character definitions as is done in some other micros (like the VIC 20, IBM PC).

To refine our terminology a bit, let's look at the common terms used by the TI enthusiast.

ROM -- means the CPU ROM
RAM -- used, mainly by TI in its advertisements
means VDP RAM, which is the term I try to use
CPU RAM -- means the CPU RAM (strangely enough)
GROM -- means Graphics read only memory
GRAM -- means Graphics read/write memory
like in the GRAM KRACKER or MAXIMEM

Let's redo our table just to keep things straight.

#	OWNER	TYPE	COMMON NAME
1	CPU	ROM	ROM
2	CPU	RAM	CPU RAM
3	VDP	RAM	VDP RAM
4	GRAPHICS	ROM	GROM
5	GRAPHICS	RAM	GRAM

Remember that the CPU, the 9900 microprocessor can only execute programs in CPU ROM or CPU RAM. Anything in the other kinds of memory is just data for some program executing in the CPU.

Now we know the five kinds of memory in the TI 99/4A, and we have the terminology to talk about them. This is a good time to ask, "Where is all this memory?"

CONSOLE (bare bones with no expansion)

CPU ROM - 8K bytes
CPU RAM - 256 bytes
VDP RAM - 16K bytes
GROM - 18K bytes

CARTRIDGE (if it were full)

CPU ROM - 8K bytes
GROM - 30K bytes

MEMORY EXPANSION

CPU RAM - 32K bytes

I/O DEVICES (RS232 and Disk)

CPU ROM - 8K bytes

Now that we are talking sizes, let's talk about the maximum sizes. As we all know (and like to brag about), the TI 99/4A is a 16 bit machine. This means that it can count (or address) bytes from 0 to 65536 (64K). So we say it can address 64K of memory (i.e. CPU memory). The TI 99/4A also uses a 16 bit word to tell the VDP which byte it wants. Two bits of this word are used as indicators so that there is only 14 bits of address. So the maximum VDP memory is 16K bytes. A 16 bit address is also used for Graphics memory (with no indicators) so its maximum is again 64K.

We are now ready to take another step, and find out what is in all this memory.

CPU ROM contains 3 main things, all written in assembler:

- The low level operating system. This code is necessary to make the machine do anything.
- The interpreter for the GPL programs.
- The Device Service Routines (DSR) which provide high level access to the input/output devices.

GROM contains 3 main things:

- The high level operating system, written in the GPL language. The high level operating system gives you the master title screen, the first level menus and provides for calling other programs written in the various languages.
- The TI BASIC interpreter, written in GPL.
- Tables of data for initializing the VDP.

VDP RAM contains 3 main things:

- The TV screen image, character, colour and sprite tables.
- Work areas for programs and device service routines.
- BASIC programs, which are interpreted by the TI BASIC or EXTENDED BASIC interpreter.

CPU RAM contains 3 main things:

- Work space for the GPL interpreter (the 256 bytes that are in the console).
- Assembler language programs.
- EXTENDED BASIC programs, which are interpreted by the EXTENDED BASIC interpreter.

So there you are! We have looked at the kinds of memory, the owner of the memories, where the memory is, what's in the memories, and the terminology used to talk about all of this. There are a few tricky and devious things we haven't looked into (like bank switching). Maybe in future articles we will have a look at them.

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## DISPLAYING YOUR PROGRAMS IN 40 COLUMNS WITH D.E.P.

by Michel JOHNSON

```
*****
*
*   Display Enhancement Package (D.E.P.)
*   requires :
*       - Memory expansion unit
*       - Disk system
*       - either Extended basic or E/A module
*       - a lot a patience
*
*   optional :
*       - nerve pills (it depends of your temper!)
*       - a cold beer or a warm cup of tea
*
*****
```

Let's face it! Displaying on a 28 col. is kind of boring and not very convenient when you have to display on the screen a lot of information, graphics or figures. The only remedy found by TI was a 40 col. display in some of their programs such as TI-WRITER. Even then, if you had your computer connected on a TV set instead of a monitor, you couldn't see the columns on the sides of the screen because these charming programs were using the full width 32 col. of the screen. not practical, I tell you. And then comes DEP from Heaven..(or Hell as we will see...). DEP permits you to display, if wanted, in a 40 col. mode using the width normally used for 28 col. So keep your TV set...

D.E.P. is an utility program produced and sold by DAK TREE SYSTEMS (25 \$ US) It comes on a 5SSD disk. This disk contains the program needed to use the DEP, a very explicit demo program (who gives you the impression that DEP is sooo eeaasssyyy to use...) and the instructions. Let's face it! This program is NOT a module that you just plug in and permits you to display permanently on a 40 x 24 screen... So here begins the fun part! DEP comes also with a 30 PAGES brochure ... the instructions...So do not expect this article to discuss in detail these instructions, we will still be here next year .

Just remember the first time you use extended basic and discovered the ACCEPT statements? This statement comes with options like BEEP, VALIDATE(..), SIZE, etc... and might had seemed kind of scary the first time you used it. Well, so is the D.E.P. after a while.

### HOW TO USE IT

D.E.P. is a DISPLAY program and can only be used while running a program. So you will still write your own programs in the 28 columns mode...It is recommended to load the D.E.P. at the beginning of your program. For this, you can use these sample instructions :

(Note : if you're using the !@P- statement in X-BASIC, don't forget to declare the CALL INIT, CALL LOAD and CALL LINK statements at the beginning of your program...)

E/A module

MINI MEMORY

```
10 CALL INIT
20 CALL LOAD("DSK1.BSCSUP")
30 CALL LOAD("DSK1.DISPEN")
```

```
10 CALL INIT
20 CALL LOAD("DSK1.DISPEN")
```

X-BASIC

```
10 CALL INIT :: CALL("DSK1.LOADER")
20 OPEN#1:"DSK1.DISPENFX",INPUT,VARIABLE 254
30 FOR A=1 TO 33 :: LINPUT A$ :: CALL LINK("LOAD",A$) :: NEXT A
40 CLOSE #1
```

And then you are ready to use, at any time in the program, the 40 col. mode.

You are NOT automatically in the 40 col. mode. You must call this mode by the very simple instruction CALL LINK("MODE40"). But there is some restrictions to the use of this mode and some operations such as CALL CHAR and RND can perform only in 28 col. mode. So in your program, it is important to make these operations when still in the 28 col. mode; if it's not possible, you can come back at in any time in the 28 col. mode by calling CALL LINK("MODE28") in your program...

### OPERATING RESTRICTIONS

You will have to forget the use of sprites (big deal) and you will also be restricted to the use of only one foreground and one background color at the time (but you can change these colors anytime).

Basically, the D.E.P. redefines ALL the PRINT and INPUT statements related to the use of the screen. So statements such as :

INPUT, PRINT, ACCEPT, DISPLAY, DISPLAY AT, ACCEPT AT, CALL HCHAR, CALL VCHAR, CALL GCHAR, CALL CLEAR, CALL SCREEN, CALL COLOR, CALL CHAR cannot be used while in the 40 columns mode.

Same thing for statements such as ON ERROR, CALL SOUND, CHR\$ and RND that you cannot use in the 40 col. mode.

For example :

CALL HCHAR(ROW,COL,CHAR,REP) will become in the 40 col. mode:  
CALL LINK("HCHAR",ROW,COL,CHAR,REP) Easy, isn't it?...

ACCEPT AT(X,Y)VALIDATE(DIGIT)SIZE(35)BEEP:U\$ becomes  
CALL LINK("ACCEPT",X,Y,35,"BED",U\$,STAT)

35 : the possible length of U\$

"BED" : B for BEEP, E for ERASE THE FIELD and D for DIGIT.

STAT : the key code who will terminated the data entry (13=ENTER)

As I said before, D.E.P. display basically as a word processor will do. It means D.E.P. is not very bright and cannot make the difference between a number and a string (oopsss! my denture...) I mean a STRING. In the example above, the value will be put in the string "U\$". To convert U\$ in a value, just add this line :

B=VAL(U\$)

Same process can be used to display variable; you must display a string. So simply add this line preceding the display line :

U\$=STR\$(B)

If you are not familiar for with STR\$ and VAL, consult your TI X-BASIC BOOK, steal one or call the TI ANONYMOUS (24 hours 738-0617).

### DATA STORAGE AND OPERATING MODES

The DATA storage consist of 96 lines of 40 characters (3840 bytes). This DATA can be displayed in 3 different modes :

SCROLL MODE :

when the screen is full, lines moves up to make place for next line, like the PRINT basic statement.

SCROLL MODE WITH LOCKED AREA : a certain number of upper lines can be locked while you scroll up or down the rest of the screen. Either part can be cleared or written

separatly at any time.

PAGE MODE :  
data (text or graphics) is divided in 4 "pages" that can  
be displayed (instantly), modified or cleared  
independently.

### TIPS AND TRICKS

When I bought the program, I was very excited and I couldn't wait to see my new 40x24 screen. Of course, I had a TV set and I couldn't even read the sides of my screen using my TE-II, TI-WRITER or FORTH. Of course, I was upset when I realised that using DEP was a little more complicated than loading TI-WRITER. But I immediatly tried to convert my favorite 400 line program with the DEP... 3 days later I was still there...crying...

Before trying to convert any of your programs, practice the different modes on a little home-made program (10-20 lines). ALWAYS SAVE A COPY OF YOUR PROGRAM PRIOR TO TESTING IT. A bug in the 40 col. mode while running your program will occur in a nice, colorful but very strange display on the screen (perfect for the christmas season).

D.E.F. has its own ERROR suboutine and will warn you politely about some of the mistakes it can recognize and this, without stopping the execution of your program.

### CONCLUSION

A lot more can be said about the possibilities of D.E.F, possibilities that I didn't explore yet. Let's say that D.E.P. is a very powerful tool if you need to display a lot of information on the same screen and does a wonderful job with the graphic/explanation display.

D.E.F. can help you if you have a T.V. set but the T.V. set cannot still help you with program such as TI-WRITER or FORTH. This is one of the reasons why I bought a monitor. Models such as ZENITH (sold at EXCELTRONIX for about 129\$) gives you the wonderful possibility to control the width and the hight of the portion of your screen you want to use. It means you can create the ILLUSION of a permanent 40 col. mode. In my case, the buy of the monitor gave me what I wanted : get rid of these big huge letters on my screen for something cute. Now, you can imagine the combined effect of the monitor AND the D.E.F.

Cute....very cute. Exactly as I like it...

A last word to say that D.E.F. comes also with other OAK TREE SYSTEM products such as the new DATABASE ACORN 99 which use it. So if you plan to buy the DATABASE in question, D.E.F. will automaticly come with it (these people are so nice...)

Good display...

MICHELJOHNSON

**TI DEMO**

**PLACE D'ORLEANS**

**8 MARCH 10 AM**

===== HANDY REFERENCE GUIDE TO PEEKS AND POKES =====

The following loads and peeks were downloaded from CompuServe's TI Forum and forwarded to us by Dave Hultberg of the Capitol Area User's Group of Harrisburg, Pa.

-----  
 If you have any additions, let me know and I'll update this periodically  
 Scott Darling 72366,714  
 -----

24K OF DATA STORAGE

If you need to work with quite a bit of data or would like to change programs, but save the data after you press CALL QUIT then you can set up the 24K of High-Memory in the PEB as a single data file called "EXPMEM2", you open this file just as you would a disk file with one exception - you must PRECEED the OPEN statement with a CALL LOAD to the location -24574 as follows:

- For INT/VAR files - 24
- For DIS/VAR files - 16
- For INT/FIX files - 8
- For DIS/FIX files - 0

Heres and example:

If you want to open up the Expansion Memory for Display, Variable 80 files this is what you'd do:

```
100 CALL INIT
110 CALL LOAD(-24574,16)
120 OPEN #1:"EXPMEM2",RELATIVE,UPDATE,DISPLAY,VARIABLE 80
```

Then continue on as you normally would.

If you want to store both data and assembly language routines at the same time do this:

```
100 CALL INIT
110 CALL LOAD(-24574,-16)
120 OPEN #1:"EXPMEM2"
130 CALL LOAD ("DSK1.ASSM1")
140 CALL LOAD ("DSK2.ASSM2")
150 CALL LINK ("START")
160 REM CONTINUE REST OF PROGRAM
```

In the above example the 24 K of high-memory was saved for use as a DATA file (DIS/VAR 80 format) then the assembly routines were loaded. The computer will look for the best place to put the routines and will adjust the pinter accordingly. After the routines are loaded, a LINK statement starts the first routine and off we go.

If that's not enough for you, you can also use the MINI-MEMORY for 4K more of storage of assembly routines! Now that's 16K of program space, 12K of assembly routine space!

\*\*\*\*\*  
 THESE ARE ALL OF THE PEEKS POKES THAT I HAVE COME ACROSS FOR USE WITH X-BAS AND 32K MEMORY EXPANSION (BE SURE TO DO A "CALL INIT"). THE P & Q VARIABLES ARE USED FOR "PIIK" - THE NUMBERS ARE FOR "POKE" OR "LOAD". IF YOU KNOW OF ANY OTHERS PLEASE LET ME KNOW AND I WILL ADD THEM IN.  
 \*\*\*\*\*

| ADDRESS , VALUE(S) | MEANING IN EXTENDED BASIC                                                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------|
| 8192 , P           | CALL VERSION(X) IF X=100 100= NEWEST VERSION OF X/B CART<br>USE (PEEK,P) IF P 70 OR 121 THEN DO A CALL INIT |
| 8194 ,             | FIRST FREE ADDRESS IN LOW MEMORY                                                                            |
| 8196 ,             | LAST FREE ADDRESS IN LOW MEMORY                                                                             |
| -28672 , P         | P=0 SPEECH NOT ATTACHED P=96 OR P=255 SPEECH IS ATTACHED                                                    |
| -31572 , 0 TO 255  | VARY KEYBOARD RESPONSE                                                                                      |
| -31740 , P , Q     | PUT IN DIFFERENT TO CHANGE BEEPS, WARNINGS, ETC                                                             |
| -31744 , 0 TO 15   | CONTINUATION OF LAST SOUND (0=LOUD AND 15=SOFT)                                                             |
| -31748 , 0 TO 255  | CHANGE THE CURSOR FLASHING AND RESPONSE TONE RATES                                                          |
| -31788 , 160       | BLANK OUT THE SCREEN (MUST PUSH A KEY TO ACTIVATE)                                                          |
| , 192              | NO AUTOMATIC SPRITE MOTION OR SOUND                                                                         |
| , 224              | NORMAL OPERATION                                                                                            |
| , 225              | MAGNIFIED SPRITES                                                                                           |

```

, 226 DOUBLE SIZE SPRITES
, 227 MAGNIFIED DOUBLE SIZED SPRITES
, 232 MULTICOLOR MODE (48 BY 64 SQUARES)
-31794 P TIMER FOR CALL SOUND (COUNTS FROM 255 TO 0)
-31804 X, Y RETURN TO THE TITLE SCREEN (USE "PEEK (2,X,Y)")
, P CHANGE THE CURSOR FLASH RATE (0 TO 255)
-31806 0 NORMAL OPERATION
, 16 DISABLE QUIT KEY (FCTN =)
, 32 DISABLE SOUND (USE NEG DUR FOR CONTINUOUS SOUND)
, 48 DISABLE SOUND QUIT KEY
, 64 DISABLE AUTO SPRITE MOTION
, 80 DISABLE SPRITES QUIT KEY
, 96 DISABLE SPRITES AND SOUND
, 128 DISABLE ALL THREE
-31808 P, Q DOUBLE RANDOM NUMBERS (0 TO 255) NEED
"RANDOMIZE"
-31860 4 GO FROM EX-BASIC TO CONSOLE BASIC (NEED "NEW")
, 8 AUTO RUN OF DSK1.LOAD
-31866 P, Q END OF CPU PROGRAM ADDRESS (P6+Q)
-31868 0 NO "RUN" OR "LIST" AFTER "BREAK" IS USED
, 0 TURNS OFF THE 32K MEMORY EXPANSION
, 255, 231 TURNS ON THE 32K MEMORY EXPANSION
-31873 3 TO 30 SCREEN COLUMN TO START AT WITH A "PRINT"
-31877 P P? = SPRITE COINCIDENCE P64 = 5 SPRITES ON A
LINE
-31878 P HIGHEST NUMBER SPRITE IN MOTION (0 STOPS ALL)
-31879 P TIMER FOR VDP INTERRUPTS EVERY 1/60 OF A SEC (0
TOP 255)
-31880 P RANDOM NUMBER (0 TO 99) NEED "RANDOMIZE"
-31884 0 TO 5 CHANGE KEYBOARD MODE (LIKE "CALL KEY(K,...)")
-31888 63, 255 DISABLE ALL DISK DRIVES (USE "NEW" TO FREE
MEMORY)
, 55, 215 ENABLE ALL DISK DRIVES (USE "NEW" TO FREE
DRIVES)
-31931 0 UNPROTECT X-B PROTECTION
, 2 SET "ON WARNING NEXT" COMMAND
, 4 SET "ON WARNING STOP" COMMAND
, 14 SET "UNTRACE" COMMAND
, 15 SET "UNTRACE" COMMAND "NUM" COMMAND
, 16 SET "TRACE" COMMAND
, 64 SET "ON BREAK NEXT" COMMAND
, 128 PROTECT X/B PROGRAM
-31952 P PEEK P=55 THEN 32K EXPANSION MEMORY IS OFF 55
MEANS ON
-31962 32 RETURN TO THE TITLE SCREEN
, 255 RESTART X/B W/DSK1.LOAD
-31974 P, Q END OF VDP STACK ADDRESS (P6+Q)
-32112 8 SEARCHES DISK FOR ?
-32114 2 RANDOM GARBAGE
, 13 SCREEN GOES WILD
, 119 PRODUCE LINES
-32116 2 RANDOM CHARACTERS ON SCREEN
, 4 GO FROM X/BASIC TO BASIC
-32187 0 UNPROTECT XB PROGRAM
, 2 SET "ON WARNING NEXT" COMMAND
, 4 SET "ON WARNING STOP" COMMAND
, 9 SET O LINE NUMBER
, 14 SET "UNTRACE" COMMAND
, 15 SET "UNTRACE" COMMAND "NUM" COMMAND
, 16 SET "TRACE" COMMAND
, 64 SET "ON BREAK NEXT" COMMAND
, 128 PROTECT XB PROGRAM
-32188 1 CHANGE COLOR AND RECEIVE SYNTAX ERROR
, 127 RESET COLOR AND RECEIVE BREAKPOINT
-32630 128 RESET TO TITLE SCREEN
-32699 0 UNPROTECT XB PROGRAM
, 2 SET "ON WARNING NEXT" COMMAND
, 4 SET "ON WARNING STOP" COMMAND
, 14 SET "UNTRACE" COMMAND
, 15 SET "UNTRACE" "NUM" COMMAND
, 16 SET "TRACE" COMMAND
, 64 SET "ON BREAK NEXT"
, 128 PROTECT XB PROGRAM
-32700 0 CLEARS CREEN FOR AN INSTANT
-32729 0 RUN "DSK1.LOAD"
-32730 32 RESET TO TITLE SCREEN
-32961 51 RESET TO TITLE SCREEN
, 149 SET "ON BREAK GOTO" LOCKS SYSTEM

```

=====

THE FOLLOWING LOADS REQUIRE E/A OR MM

=====

| ADDRESS | VALUE(S)   | MEANING                                                                   |
|---------|------------|---------------------------------------------------------------------------|
| 784     | , P        | USE POKEV(784,P) (WHERE P IS 16 TO 31) CHANGES BACKGROUND COLOR OF CURSOR |
| -24574  | , 8        | I THINK THIS ALLOWS THE MINI-MEM TO USE THE 24K FOR STORAGE               |
| -30945  | , 0        | WHITE EDGES                                                               |
| -32272  | , 0 , "" , | -30945 , 0 ) WILL PUT YOU IN TEXT MODE                                    |
| -32766  | , 0        | BIT MAP MODE                                                              |
| -32768  | , 0        | GRAPHICS (NORMAL MODE)                                                    |
| -32280  | , 0        | MULTI-COLOR MODE                                                          |
| -32352  | , 107      | WILL BLANK THE SCREEN, ANY KEY PRESS WILL RESTORE                         |

=====

\* PASCAL LOADS

=====

14586 , 0 , 0 THIS ALLOWS YOU TO DO A "RUN-TIME WARM START" FROM PASCAL TO BASIC

\*\*\*\*\*

THIS SPACE IS TO ENTER ANY ADDITIONAL PEEKS & POKES YOU HAVE THAT ARE NOT ON THIS GUIDE.

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Special insert to CALL SOUNDS, December 1985. The newsletter of the Central Westchester 99'ers Club. 1261 Williams Dr. Shrub Oak NY 10588.

+++++ (D/V80)



T.M.

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TI-FEST BULLETIN - by Jane Laflamme

Things are running quite smoothly for the TI-FEST to be held here in Ottawa on the 26th of April (Saturday) co-sponsored by NUAC and Ottawa user groups. Plans are finally falling together and letters to invite distributors from across Canada and the U.S. have been mailed; so if your are speaking to one of our sponsors, give us a "plug".

Invitations to individuals and user groups that we have had contact with outside of the Ottawa area will have probably been sent out by the time you are reading this. If you are corresponding with someone in another User Group in Canada, (or the U.S.), be sure to mention that the "FEST" will give them a chance to "strut their stuff", meet other groups and individuals, with the same problems and joys that they have....share knowledge, show us the software/hardware they have developed! Too good to be missed... We will also help find them accommodation if possible. Tell them to check transportation costs; when booked quite ahead of time, they might not be as expensive as they thought!

Any groups or individuals will be quite welcome, so if by chance you do not receive an invitation, please contact us at the address on the Newsletter cover and we will rush one off to you. (We will not be sending out formal invitations to the Ottawa User Group members... to save on postage.)

Ryte Data, who have exclusive distribution rights in Canada for the German Extended Basic (adds 40 additional graphic commands to the original TI XB) have indicated to one of our members that there is a strong possibility that they will attend, I believe. (Perhaps they may also have that 80 col. card that I have heard tell of, developed in Germany!) We also had reason to speak with Lou Phillips a month ago and took the opportunity of inviting him at that time. He didn't say yes, but he didn't say NO either! If the computer /128 does "go" at the New Jersey fair, where he is slated to debut the machine, maybe he would like to meet a new market here in Canada. We are definitely keeping our fingers crossed...

Slated for the show: Tutorials, workshops, demonstrations of new and old software and hardware, door prizes, wind-up dinner, and much, much more as it falls into place. The more people attending, the more succesful the endeavour. We have provided the means now YOU help us by volunteering to help or, at least, attending YOUR show! Any suggestions or ideas will be gladly accepted...

Jane Laflamme  
(613) 837-1719 or 830-5347

Congratulations to Philip Hawtrey of Manotick who won the prize of one week for two to Moosehead Lodge in the membership drive for this year! And also a huge thank you to Mel Taggart a valued member and sponsor, and owner of Moosehead Lodge, who donated this prize to the User Group. Mel, we really appreciated it!! Thank you.

```
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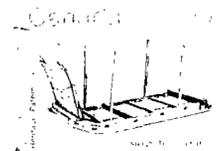
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