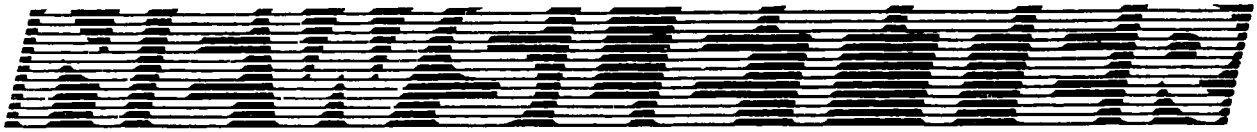


065, 8711



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



VOLUME 6 NUMBER 07...NOVEMBER 1987



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

EDITOR'S NOTES

from
Ruth O'Neill

After the elections at the October meeting, we have a mixture of old and new faces in the executive. The President has never served on the Ottawa club's executive, the Vice-President has served before, but not in the last term, and the Treasurer and Secretary are continuing in the positions they held last term. Represented on the front page of the newsletter are, from left to right:

Michael Taylor -- President
Jane Laflamme -- Vice-President
Peter Arpin -- Treasurer
John O'Connor -- Secretary

We have no Past-President at this time, but the constitution has been amended and will now allow one to be appointed if necessary. Unfortunately, this newsletter must go to the printer before the Executive meeting, so I have nothing to report in that area.

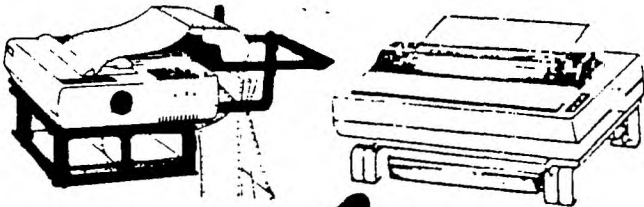
Most of the non-elective posts in the club are unchanged. Lucie Dorais will continue to look after memberships, Stephen Bridgett is the Chairman of the Library Committee, Henri Monat is our Archivist, and Jane Laflamme is chairing the FEST committee. Marg O'Connor has resigned as editor of the newsletter, as she announced last month, and I have taken over the position.

Mr. Diskette

SUPPLIES

Printers...

DESK TOP
PRINTER STANDS



EPSON®
LX-800

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Diskettes..

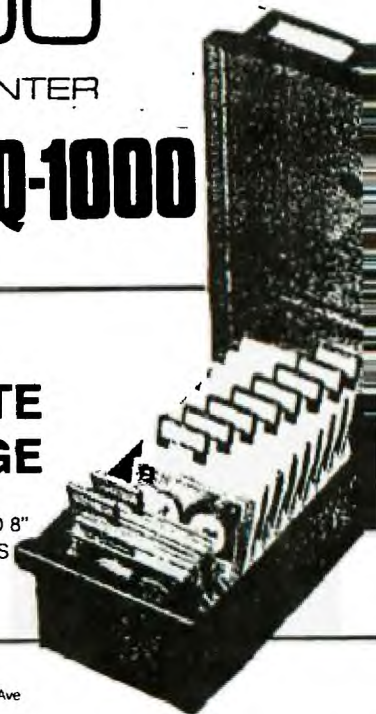
AXIOM SM Made in Canada
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XIDEX *Dysan*

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M4K 1K5

As the new editor, I am very much in need of your support. I circulated a questionnaire at the October meeting, and it should prove helpful to me in deciding where your interests lie. This is your newsletter, after all. Tell me what you want to see in it! If you were not at the last meeting, I will have more copies available at the November meeting. Many people have already replied to their questionnaires, and I would like to say "thank-you" to everyone for the prompt response. Special thanks also go to Marg O'Connor, for enduring my frequent telephone calls over the past few weeks, and to Lucie Dorais for the cover illustration. I couldn't have produced this newsletter without them, or without the submissions from the various contributors this month. I am most impressed with this club's level of participation in the newsletter. I certainly hope that this will continue, and that we will maintain the fine reputation that our newsletter has gained under Marg O'Connor.

The deadline for submissions of articles or Trading Post items for the next newsletter (December) is November 15, 1987. Until next month, then...

Ruth O'Neill
Editor

THE PRESIDENT'S TWO CENTS WORTH

To begin with, I hope to speak for all members when I say "thank you" to the previous executive and committee members for their efforts on the club's behalf this past year. A job well done! Particular thanks must go to Lloyd Galenzoski who took over so ably after the untimely death of our president, Berry Minuk.

By the time you read this, your new executive will have charted, in broad terms, the path for the forthcoming season. I do not anticipate any radical change in direction for the club. We will continue to emphasize our library, our bulletin board, and our newsletter as major ongoing projects. We will continue to provide language tutorials and special workshops, as your interest warrants. From now until spring, our TI FEST will assume ever-greater importance in our plans.

Briefly, though, I want to mention 2 areas I believe deserve more attention. First is the archives. Henri Monat has performed a Herculean task (second only, perhaps, to Stephen Bridgett's cataloging of the library) in assembling, organizing and cross-referencing articles gleaned from newsletters and magazines. I urge all members to become familiar with this valuable resource and to aid in its expansion. Second is Geneve, the Myarc 9640 computer. Growth is essential to the wellbeing of our TI community. We have lost many members to computers sporting more memory and higher-resolution displays than our 9974a offers. I urge those members who feel bound by the limitations of our machine to look to Geneve rather than jumping ship. We will do a service to ourselves by encouraging development of Geneve expertise within our group.

Michael Taylor

TI FEST RETURNS!

After last year's very successful fest, there should be a lot of enthusiasm generated by the prospect of the third annual TI FEST. It will be held on March 5, 1988 at the Merivale High School, and we hope to have many out-of-town guests participating, both showing and as spectators. Anyone interested in a booth or presentation at the Fest should contact Jane Laflamme, who is chairing the Fest committee this year, at 837-1719 (home) or 745-2225 (work). Volunteers are also urgently needed, both for organization and on the day of the Fest. It's not too early to get involved, so if there is anything you can do to help out, or if you would like to help but don't know how, give Jane a call. The Fest is even more fun when you are actively involved. Keep that date free, and tell all your friends. See you there!

BROWSING THE LIBRARY
--with STEPHEN BRIDGETT

This month I want to explain to you just how the library functions. This includes acquiring software as well as maintaining and distributing it.

First of all, anyone interested in seeing the library continue to grow and represent a useful source of software should realize that it is YOUR library, and only increases in size with YOUR assistance. The library is always in need of software updates as well as new material.

THE LIBRARY HOT LINE IS ** 521 3631 **

The people committed to maintaining the library and who have made it what it is include;

Jack McAllister..Cassette Software
Steve McWatty....FAIRWARE Correspondent
Stu Bruce.....Assistant Librarian and Disk of the Month Sales
Bernard Vanden...General Correspondence
Ken McKenzie.....DM1000 Correspondence
Bob Lanoy.....Documentation Co-ordinator
Dan McCormick....Telephone Survey Co-ordinator
Assistant to Dan;
Jan Czaban
Al Palmer
Tom Mercer

I look after maintaining the library and producing updates of the catalogue. It is my job to see that every piece of software that comes into the library is either new or the latest version, and that the catalogue accurately reflects that. I also help with correspondence and write this article.

You'll notice space does not permit me to list the other contributors, they being the members at large (you) who are responsible for ensuring that the library reflects the variety of software out there in TI-LAND.

As for distribution, let's look at how you receive the benefits of your hard work.

Since the library is now an organized reality, it will be brought to the meetings, along with the catalogue. Time does not normally permit copying at the meetings. However, with it being there, you can scan the disks and gain an appreciation of what is available. Disks you CAN get at the meeting include the catalogue, the cataloger, and the DISK OF THE MONTH. You can request any disk to be made for you and it will be available at the next meeting or at my house if you need it sooner.

At the meetings you will find Jack McAllister and Stu Bruce doing the selling and Bob Lanoy distributing and collecting the Docs sheets.

Now you want to know about the price scheme, refunds etc.

The executive has given me leniency in setting prices. I have always felt that the duty of the librarian was to ensure the widest and most inexpensive distribution of the software, while generating a moderate return for the club. Accordingly I have set prices which I feel guarantee a source of revenue for the club, while allowing anyone to acquire and maintain a useful software collection.

It should be noted and emphasized that sales of FAIRWARE do not compensate the authors. The minimal price which the member pays for a disk barely covers the time of and expense to the club. Conscientious persons will respect the authors and make a contribution to them, with respect to the usefulness of the particular piece of software to their needs. Authors encourage the club to hold and distribute their FAIRWARE for the much-needed exposure, not as an act of charity. Enough said; the price scheme follows:

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=====
PURCHASES
ONE DISK.....3.00
2ND DISK (OF A SET) 2.00

CATALOGUE 1 X DS....3.00
CATALOGUE 2 X SS....5.00
=====
CREDITS
OLD CATALOGUE (DS)..1.00
OLD CATALOGUE (SS)..2.00

DOCUMENTED DISK.....1.00

SOFTWARE (1 DISK)...2.00

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If there are complaints I want to hear them. The way I see it, a catalogue update on single side will be 5-2=3 bucks. There is a whole lot of info and hard work for three bucks! Software is 3 bucks with a credit of 1=2 if you document it. If you contribute new software you can pick your new disk for as little as 1 dollar (3-2=1).

Out-of-towners add postage and expect a reasonable turn-around time. By the way, on this note, correspondence to date was sadly in arrears. No moaning excuses, but the reformation of the library took precedence for a long period of time. All letters still unanswered are on hand and being attended to. Updates in regards to software requests will be automatic.

That's the bottom line, folks. There are currently 300 disks in the library. There may be errors, omissions and some duplications, but you have a money-back guarantee.

Disk of the Month for November is an excellent VCR data base cataloger.

See you in November,
Your library Committee.

TEXLINK IS HERE
Lloyd Galenzonski

About two years ago, Benoit Tanguay began writing an all-assembly BBS program for our group. This was an immense undertaking, which required many hours of tedious work. But, with the help of several other members, here we are with a finished product that can be shared with others in the TI world.

At the last Executive Meeting, the Executive approved the sale of the program at a price of \$50.00. The package includes documentation, program files, system files and operating files.

The program was originally designed to operate on the club's hard disk, and required a Supercart. Several versions later, we have a product that can operate, effectively, on as little as one double-sided single-density drive.

It can accommodate up to ten file transfer areas and ten message bases. The limiting factor is likely to be storage mediums.

The clock routines are written for specific use with the club's home-built clock. For systems without a clock, the calendar can be manually set. Clock routines for other types of clocks could be incorporated into a customized package for any purchaser. However, there will be a charge for any customizing, based on the amount of work involved.

Anyone interested in seeing how this program works can call the club BBS (24 hour service) at (613)738-0617. Guests will be asked the part number of the Extended Basic Module. So, if you intend to call, make sure you check this out first.

Written enquiries should be sent to the address on the front cover of this newsletter.

OTTAWA TI-99/4A

1987/88 Pro-Am Software Contest

RULES:*

General:

- G1 - There will be two categories: Pros and Ams
- G2 - Prizes:
 chance to win the Grand Entry Prize which will be
 chosen by random selection.
 indicated in the respective rules.
 selection if they are available.
- G3 - Generally, anyone is eligible to enter either or both
 categories (see Pro Rule P1 for eligibility restriction
 to that category). However, each program submitted is
 subject to acceptance.
- G4 - The software program may be of any type (eg game,
 utility, business, etc) and may be written in any
 language that can be used on either the TI or Geneve
 computer.
- G5 - Deadline:
 Entries will be accepted up to and including the day of
 of the March, 1988 Meeting by delivery to the Contest
 Chairman. Note: Entries ready before the deadline may be
 submitted when ready - and would be appreciated.
- G6 - Programs submitted and accepted into the contest become
 the property of the Ottawa TI-99/4A Users Group.

Pros:

- P1 - Eligibility
 The Contest Chairman and judges are not eligible to enter
 this category.
- P2 - Prizes
 "2nd Place" award will also be awarded.
 (draws)
- P3 - Entries will be judged on the basis of (i) performance,
 (ii) ease of use, and (iii) documentation. The Contest
 Chairman's decision is final.

Ams:

- A1 - Prizes
 Each program entered qualifies for two (2) diskettes
 with a maximum of ten (10) to any one person.
- A2 - There are no other rules.

*These rules are provisional and subject to approval by the new executive before they will be considered official. Start working now, though -- even a small program that you might think is useful only to you COULD be useful to someone else! Join in! You have nothing to lose! At the September meeting, Bill Sponchia urged members to participate, however modest they may feel their efforts to be.

GENEVE UPDATE

For those of you who are as yet skeptical of the new GENEVE 9640 computer hardware update by MYARC, I think you should take a second look. This short news item is being written and edited on the newest version of MYWORD, the word processor program modified for GENEVE and fully compatible with TIWRITER. The differences between them are not immediately noticeable until you begin to use it. You eventually become aware of the fact that you no longer have to window your work since you now have an 80 column display. The editor contains some new and very useful modifications.

- Type V -you get the version number of MYWORD now V1.0
- Type VF -you are able to view any file, current file is retained.
- Type H -you may view all the codes for CONTROL U, FORMATTING, EDITING, and the EDIT KEYS
- Type FO -you go directly to the formatter and are able to see exactly how your text will look.
- Type SO -you may save options such as screen colour code.
- Type ET -you may edit the TAB settings.
- Type ST -you may see your tab settings at the bottom of the screen.

Other things appear at the bottom of the screen, such as an indication of much more space, an arrow pointing out the direction of your search routine, the current month and day and the time of day.

When you save or update a program, the directory will show you the exact time and date for both functions.

MULTIPLAN has recently been modified. It now has an 80 column display and is very much faster. You also have a great deal more space in which to work and manipulate your files. It is also completely compatible with your older MP files. You will notice that when you print a file, the computer is freed rather quickly of the print routine owing to the fact that GENEVE is equipped with a spooler.

There are many more UPGRADES to GENEVE promised in the very near future. Among these are USCD Pascal, a DOS file, Advanced Basic, a Mouse, and a Graphics Package. The very near future may be as close as next week.

PRESENT STATUS OF GENEVE :

1. You can copy most of your cartridges to disk and run them as if you were using the TI-99/4A.
2. You have control of the processing speed in 5 steps.
3. You have a battery-backed timer.
4. You have access to a RAMDISK with 720 available sectors
5. You have the use of an IBM style keyboard.
6. You have compatibility with the HORIZON ramdisk.
7. You have a very active design team who continuously keep you up to date and sends you necessary updates.
8. Currently available on our BBS are a number of very recent updates available in download section (9).

GENMGR1;ARC	especially for GENEVE
CSAVE;A	cartridge saver
MPLAN;A	
TERM-II;A	Fast Term for GENEVE
RAG;A	Allows loading MYWORD from HRD/Also provides a menu on the opening screen in 4A mode.
CLOCKSET	Allows updating clock

That's all for now folks. Until next time,

Jack Adams (#79 on the BBS)

MINER GAME: A MAJOR GAME

This article is an analysis of Miner 2049er by Tigervision and is also the adventure of James... Well! Read it and you should be able to find out whom I am talking about.

GAMEAUCRATS
by Henri Monat

RULES OF THE GAME

In the year... 2049, there is a miner called James. James has to travel through gold mines with platforms, galleries, flying carpets, slides, ladders and elevators. His mission is to sweep the gold mines by taking possession of all the gold he may find. This is not easy though because some platforms are not easily accessible and also because some of them are jealously protected by small (almost "miner") ruthless 4-legged bugs. James is a lonely miner: although he loves company (mostly women), he always works alone. He knows that he is given 3, and only 3, lives to sweep the 8 gold mines there are. But James has tremendous qualities:

- He is self-confident: he can feel, almost smell, that this adventure is a winner and is based on a fair balance between skill and his ability to discover the best route for each mine. He is fast, alert and nimble: on pressing the fire button, he advances by leaps and bounds on platforms, or over the 4-legged bugs, or into the slides, or even, supreme refinement, on a flying carpet. He knows that if he jumps too far away, he is dead. But he likes risky situations; it is a challenge for him and, maybe, a safe-conduct for future events.
- He likes gadgets: these are his "tools of the trade"; they can be a tricky miner's pick, or an explosive shovel, or even a sophisticated illusory lantern. James uses these gadgets to kill the bugs. Those bugs have "a view to kill" him; so he is merciless too: he grabs a gadget-tool suspended near him, he quickly jumps, if necessary, on his flying carpet and... "gloops", he tackles down any bug that might be on his way. He must act quickly because the effect of the sham lasts a few seconds only.
- He is generous: each square foot of gold mine of which he takes possession is worth a nickel (it is not that the gold price has dropped; it is the nickel price that has gone up) and he gives them all to YOU. In addition, each time James snatches a tool to catch a bug, YOU receive a bonus for both the tool and the bug. Finally, whatever time is left to him when he has swept a mine, is also given to YOU as a bonus; you will soon find out that time is worth more than gold and nickel. Because James would give his life for YOU, there is a bond of friendship between him and you.

The following is a short review of each screen.

MINES 001 AND 002

These are fairly easy screens. Here, apply Parkinson's Law:

"Work expands to fill the time available for its completion."

which means: take your time, experience, learn how to slide, how to jump and how to use your gadget-tools; relax, observe the bugs' behaviour and try to learn how far you can go.

MINE 003

This is the most stressful screen and, because of that, one of the most difficult. To be successful, apply Shawn Millar's tip, published in our March 1985 Newsletter:

"You have to have your feet hanging off the edge before you jump or you will miss the next square."

MINE 004

There are 2 major difficulties here; you will discover them soon. If you are alert, precise and nimble, you will find the solution. Be creative; otherwise, you will run out of time. If you can pass through this one, you can make them all.

MINE 005

This is an easy one. Plan your route carefully, though, because you might not be able to come back.

MINE 006

This is probably the most difficult in terms of thinking and planning, but also very enjoyable to solve. BOB BOUNTY, you have to be a near-genius for having created that one. By the way, a screen created by a near-genius can only be solved by a near-genius... (strike 2 for my humbleness).

MINE 007

This is "for your eyes only"; it is the nicest screen and a very creative one. The flying carpet (is it a Mustang?) is a powerful tool for solving that one.

MINE 008

I favour this screen because of its originality: the route concept is different, the graphic is nice and the sound is pleasant. I like, for example, to hear the sound of James' bouncing head on the lead pipe which is at the right bottom of the screen.

QUIZ

Depending on your own interest in the game, pick the right question:

- For those who are more interested by utility programs than by game questions: WHO IS JAMES?
- For the Gameaucrats, here is a utility question: as you know, there are 6 guarded platforms in Mine 008; the classic route to make this screen is to go on each of the 6 platforms. HOW CAN YOU MAKE SCREEN 008 BY GOING ON ONLY 5 OF THE 6 GUARDED PLATFORMS?
- For the "super-duper": how can you make the same screen 008, by going on only 5 of the 6 guarded platforms AND BY FINISHING UPSTAIRS?

If you have the answer, or if you want me to analyze other games, please get in touch with me or leave me a message on the BBS (finally, I am on it). Those with any right answer will receive a free Gameaucracy-land certificate.

Game Scores from Scott Baldwin

Last month, the complete list of the Club's high game scores was published in the newsletter. Since that time, some of the scores have been broken. The following high scores were submitted by Greg Simmonds:

BLASTO.....42120 (1st)	MUNCHMAN.....62640 (2nd)
BURGERTIME...190250 (2nd)	POLE POSITION....150250 (3rd)
DONKEY KONG..55650 (2nd)	SLYMOIDS.....29240 (2nd)
HENHOUSE.....54420 (2nd)	MOON PATROL.....31650 (2nd)
ANTEATER.....7506 (2nd)	PACMAN.....32650 (1st)
DIGDUG.....5590 (3rd)	PARSEC.....120650 (3rd)
BARRAGE.....298020 (2nd)	JUMPY.....124600 (3rd)
BUCK RODGERS.32942 (1st)	MINER 2049er.....22950 (2nd)

The most up-to-date listing of high scores is found on the Club BBS in the INFORMART. The limit for keeping single game scores has been extended to one year, and new games will be added to the list as required. If you have any new scores, questions or suggestions, please contact Scott Baldwin on the BBS (#54) or at 521-1403 between 5 and 10 pm weekdays and all day weekends.

Close encounter of the **Trois-Rivières** kind
by Henri Monat

"This month's mail really was a bountiful load. Newsletter of the month goes to a newsletter I could only read about half of, because it was in French."

These were the words of Computer Shopper Magazine, September issue, awarding Le ti-MOT the distinguished honour of being "Newsletter of the Month". It was also mentioned in the first page of the May issue of MICROpendium. Le ti-MOT is the newsletter of Mauricie 99, a User Group gathering Tiers from the Trois-Rivières area, in Québec. Trois-Rivières city is the heart of La Mauricie region; thus the name Mauricie 99.

Le ti-MOT (pronounced tee-mo) literally means The Little-Word. Programmers know what a WORD is in Assembly language and everybody knows its meaning in day to day language. It has the same two senses in French. "Ti" is a happy discovery because it refers not only to our TI computer but also, as in English (such as Little John), it denotes friendship and warmth.

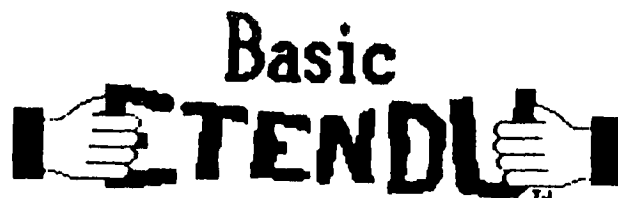
I was impressed by both the material presentation and the content of Le ti-MOT.

MATERIAL PRESENTATION

Le ti-MOT's logo shows a Peripheral Expansion Box. At the left of the PEB, where the disk drives are, there is a new drawing each month. The September issue, for example, shows a candle on a muffin with the number 5 above: September 1987 was indeed the 5th anniversary of Mauricie 99. (There is also a birthday cake with 5 candles somewhere else in the newsletter). In the June issue, the PEB showed a woman's face overcast with sorrow; a little note on the back of the issue stated (rough translation):

"How many evenings did you pass with this mistress hidden behind the metal lines of your 99? This face looks like all these lonely spouses who stay long evenings before the other TV. Not a little thank-you (ti-merci), Colette, but a big one."

Le ti-MOT has also a special distinctive drawing for each article. Look for example at the one I favour:



which is self explanatory and does not have to be translated. The C99 column drawing is very original: it shows an egg shell broken in two parts with "C 99 C" in between; along each part of the shell, it says "new, fast and very easy". The Logo column drawing shows the letters LOGO and two rockets, all made in Logo language on a graphed paper. The Forth drawing is a pun: "le mot forth". If we pronounce FORTH "à la française", the TH is silent. "Le mot forth" therefore means "The strong word".

CONTENT

In Le ti-MOT, we find columns on Basic and XBasic, Forth, Assembler, Pilot 99, C 99, Logo and Multiplan. We find also reviews of various products, the column being called: the Nice Word (le fin mot). There is for example a review of JOYPAINT 99, Mechatronic's 80 column card, Maximem, Display Master, Horizon Ram Disk, etc...

Finally, there is always a word on other newsletters and magazines: Chicago Times, Computer Shopper, MICROpendium, GENIAL TRAVELER, Clubline 99, RYTE Data, Smart Programmer, Los Angeles' Topics, Compute and even, in April 1987, our own Ottawa Newsletter. I promised François Gauthier, whom I interviewed, to say a word on the Logo column, called LogoTommy, by Tommy Jutras. The first issue of Le ti-MOT says that Logo II is a complete language; it is as easy and as fast as XBasic and it has colour graphics, sprites, turtle, speech and music capabilities. I may add that TI Logo has 16 colours while most other computers' Logo language have only 8. Unfortunately, Mauricie 99 Users' Group has about 20 members, very few of them being interested by Logo language. Tommy Jutras might be interested in exchanging ideas, information or programs with those of our members who have the same interest. Let me know (824-0941) or leave me a message on the BBS.

Long-live ti-MOT! Félicitations! Restez enthousiastes! J'ai hâte de lire vos prochains bulletins, car vous lire, c'est vous connaître. Et n'oublions pas, Colette, que les surgelés ne valent pas les petits plats mijotés!!!

EXPANSION PORT INTERFACING: Part 1.

By David Caron

The TI-99/4A's expansion port is the most versatile way of interfacing with the outside world due to the numerous addresses that can be used for Input/Output operations. TI has specially designated an 8K block of addresses of the 64K CPU map for interfacing with external devices such as Disk Controller, RS232 card, P-code card, etc... However only one device can be accessed at a time, depending on whether or not a particular device has been selected by the CRU addresses (yet another addressing system). When the RS232 card or the Disk Controller card turns on, the lighted L.E.D indicates that that card is activated and will read the 8K block reserved for this purpose. When neither of those cards are on or for that matter no other CRU cards such as a RAM DISK or P-CODE card, then no device will respond to data on that 8K block. This would be most convenient for TI-systems with stand-alone memory or built-in memory where the expansion port was free for another connector which would connect to your circuit. Of course, Extended Basic would be needed to "Poke or Peek" at that unused 8K block of addresses (04000 5FFF or 16384 to 24576). Below is a pinout diagram of the expansion port.

It is oriented the same way as the actual expansion port in the TI-99/4A with the even pins over the odd pins.

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44
SBE	EXT	A	A	A3	RE-	A8	A	A9	A2	CRU		WE		A1	ME-	D7	D6	D5	D1	D3	AUD
	INT	10	11		ADY	14			CLK	03			MBE		MEM						IN
+5V	RE-	A5	A4	D-	A12	LO	A	A7	A	GND	GND	GND	GND	A6	A0	CRU	D4	D0	D2	IAQ	-5V
	SET			BIN	AD	13		15								IN					
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43

EXPANSION PORT TABLE BY PIN NUMBER:

PIN	SIGN.	I/O	DESCRIPTION
1	+5V	+	+5 VOLTS. Used for Speech module but can be used for "other things". Milliamps MUST NOT EXCEED 50ma.
2	SBE	Out	Speech Block enable (active high). Used to access Speech Module.

PIN	SIGN.	I/O	DESCRIPTION (cont'd)
3	RESET	Out	Resets the whole computer (active low). Same as FCTN QUIT(+).
4	EXTINT	In	External Interrupt (active low). Forces the CPU to execute VDP interrupts even if the 60 Hz Video Display Processor vertical Sync. Interrupt has not triggered.
5	A5	Out	Sixth most significant CPU address.
6	A10	Out	Eleventh most significant CPU address.
7	A4	Out	Fifth most significant CPU address.
8	A11	Out	Twelfth most significant CPU address.
9	DBIN	Out	Data Bus In.(active high). Allows external devices to force the Data pins high or low now that the CPU is in receiving mode, Ready to accept Data off the Data bus. This is the only time another device is permitted to force the Data pins high or low.
10	A3	Out	Fourth most significant CPU address.
11	A12	Out	Thirteenth most significant address.
12	READY	In	(active high). Tells CPU that external memory is ready for a memory access.
13	LOAD	In	(active low). Forces the CPU to load the workspace pointer with the contents of OFFFC and to load the workspace pointer with the contents of OFFFE. The Load may be a forced BLWP. The operation cannot be ignored with LIM1.
14	A8	Out	Ninth most significant CPU address.
15	A13	Out	Fourteenth most significant address.
16	A14	Out	Fifteenth most significant address.
17	A7	Out	Eighth most significant CPU address.
18	A9	Out	Tenth most significant CPU address.
19	A15	Out	Sixteenth most significant address. It is also the CRU output bit (CRUOUT active high)
20	A2	Out	Third most significant CPU address.
21	GND	-	Common ground.
22	CRUCLK	Out	Communication Register Unit Clock. (Active low). Puts the CRU in input mode (receive data in CRUOUT), Otherwise the CRU may be in output mode.
23	GND	-	Common ground.
24	O3	Out	Phase three of the CPU Clock(TMS9904).(active low).
25	GND	-	Common ground.
26	WE	Out	Write enable (active low). Indicates a memory write.
27	GND	-	Common ground.
28	MBE	Out	Memory Block Enable (active low) Memory access to block 04000 05FFF.
29	A6	Out	Seventh most significant CPU address.
30	A1	Out	Second most significant CPU address.
31	A0	Out	(First) Most significant CPU address.
32	MEMEN	Out	MEMory ENable. (active low). Memory access to expansion memory.
33	CRUIN	In	Communication Register Unit IN. (Active high). Input bit from CRU.
34	D7	I/O	Eighth most significant CPU data.
35	D4	I/O	Fifth most significant CPU data.
36	D6	I/O	Seventh most significant CPU data.
37	D0	I/O	(First) Most significant CPU data.
38	D5	I/O	Sixth most significant CPU data.
39	D2	I/O	Third most significant CPU data.
40	D1	I/O	Second most significant CPU data.
41	IAQ	Out	Instruction Acquisition. (active high). CPU is in input mode getting an instruction, as opposed to data.
42	D3	I/O	Fourth most significant CPU data.
43	-5v	-	Minus 5v in relation to Ground which would be positive. Used for Speech module, can also be used by "other things". Must NOT EXCEED 50 MILLI AMPS.
44	AUDIN	In	Analog audio input from Speech Module and also anything else you wish to add. EX. AM transistor radio. You will hear it come out your monitor.

There it is folks! The most complex port on the TI-99/4A. The next article will explain the connection between the software aspect of interfacing, and the hardware port.

two other characters, namely "\$" and "#", and if you trusted me, you have typed line 200 as "Want to have A surprises?". To redefine them as legitimate "W" and "?" that would look exactly like the originals, we could have used a magnifying glass to study those characters on the screen, then used a chardef program to design them, then used a CALL CHAR statement using those definitions. Actually, that is what you have to do in TI BASIC. The wise gurus of XB have designed a much quicker function: CALL CHARPAT, which reads the definition of a character into a string. This does not necessarily read the standard definition, but the definition that the character has when CALL CHARPAT is encountered in the program. In our example, of course, the definition was the standard one, since we had just started our program. So the line

```
170 ... :: CALL CHARPAT(63,A$,87,B$) :: CALL CHAR(36,A$,35,B$)
```

reads the definition of char. 63, "?", into A\$, and that of "W" (ASCII 87) into B\$. What to do with A\$ and B\$ now? Well, we use them right away to redefine our new characters, using the same string variables: "\$", ASCII 35, becomes A\$, i.e. a "?", while "#", ASCII 35, becomes B\$, i.e. a "W".

If you really ran the program through its three screens, you noticed that the last one said "NOW... THAT WAS AN EASY ONE?", and this great phrase was written exactly like that in line 370. Why can we now use "W" and "?" with confidence? Because of another magic XB statement: CALL CHARSET in line 360. Its purpose is to restore the standard character definitions, but only for characters 32 through 95; that means that the lower case is not restored back. Note also that it restores the standard character set, not whatever definition was there before the CALL CHAR statement.

I hope this is not too confusing. But, you ask, where are the goodies this month? None in the program itself, but I found a nice postscript on PRE-SCAN, one that is not mentioned in the manual. It comes from Paris, France ("99 Magazine"). If you pre-scan your program, you can do what Tex normally bluntly refuses to do: a FOR NEXT after an IF statement... Try this one:

```
110 CALL KEY(0,K,S) :: IF S=0 THEN 110
120 IF K=49 THEN FOR I=1 TO 10 :: PRINT I :: NEXT I :: GOTO 110
ELSE FOR I=1 TO 10 :: PRINT "?" :: NEXT I :: GOTO 110
```

It will not work; Tex will say "* SYNTAX ERROR in 130". Now add this pre-scan line:

```
100 GOTO 110 :: K,S,I :: CALL KEY :: !@P-
```

and run it. It works!

SPECIAL CORCOMP

With the Corcomp tools, color definition is even faster, provided you understand how color is mapped in Tex's memory in an XB environment. The colors for each set are in VDP memory, starting at address 2064 for set 1, 2065 for set 2, etc. Each byte contains both the foreground (left nibble) and background (right nibble) colors, in the assembler fashion (0 is transparent, 1 is black, 15 is white, all in hex, of course). In line 290 above, a transparent character on a white background would be: 00F, which is 15 in decimal; this is the value to be poked into sets 4 to 7. Since we have one byte per set, we start poking at 2067, and we need the XB bias of 96. Line 290 could thus be written as:

```
290 CALL CLEAR :: CALL LINK("VPOKE")(2067,96,15,15,15)
```

To put the colors back into our sets, we do the same, but poking to one set only is not faster than a CALL COLOR statement. I let you analyze the following:

line	CALL COLOR	=	CALL LINK("VPOKE")
320	{4,9,16,5,9,16}		(2067,96,143,143)
340	{6,5,16}		(2069,96,79)
350	{7,12,16}		(2070,96,191)

TI BASIC continued from October
by Steven Shaw

TI BASIC GLOSSARY (cont'd)

OUTPUT	Used to specify a data file is to be used for output only.
POS(STRING\$,X\$,NO)	Used to obtain the first occurrence in STRING\$ of X\$.
PRINT	1. Used to display characters on the screen and to scroll the screen upwards. 11. Used to send data to an external storage device when used with files.
RND	Used to obtain a RANDOM number. The same sequence of numbers is generated every time a program is RUN.
RANDOMIZE	Used to set the initial number used by RND to be different each time a program is RUN.
READ	Used to place the values in DATA statements into variables.
REC	Used with the disk system to specify a specific RECORD in the file.
RELATIVE	Used with the disk system for random access to data on a file by using RECORD numbers.
REM	Used to add REMARKS to programs.
RES / RESEQUENCE	Used to resequence a program, that is, change the line numbers. Default is to start the program at line 100 and use increments of 10, but start number and increment may be specified.
RESTORE	Used to reset the DATA pointer, either to the first data item, or to data on a particular line.
RETURN	Any line transfer by GOSUB must be terminated with RETURN. The program then transfers to the line following the GOSUB.
RUN	Instructs the computer to RUN the program in its memory.
SAVE	Used to SAVE a PROGRAM to a storage device.
SEQUENTIAL	Used to specify that file data is recorded in the order it is output. The alternative is RELATIVE, which is not available with cassette files.
SGN(NO)	Used to obtain the SIGN of the number NO. Indicates if NO is zero, negative or positive.
SIN(X)	Provides the SINE of the angle X where X is in radians.
SQR(X)	Provides the SQUARE ROOT of the number X.
STOP	Used to STOP program execution. A STOPPED program may only be resumed by re-RUNNING it.
STR\$(NO)	Used to change a number or numeric variable into a string. The converse is VAL.
TAB	Used when PRINTING to print at from a specified column.

TAN(X) Provides the TANGent of angle X where X is in radians.

TRACE Causes the computer to list on screen the number of each line as a program is executed. Switched off with UNTRACE.

UNBREAK Used in command mode to remove BREAK commands which have been placed in command mode.

UNTRACE Switches TRACE off.

UPDATE Used with disk file processing to enable a file to be read or written to.

VAL Used to obtain the numeric equivalent to a string. The string must be composed only of valid numbers.

VARIABLE Used with disk files to indicate the file is to be as long as the item to be stored, which may vary.

CHAPTER FOUR

CASSETTE HANDLING

USING CASSETTE RECORDERS WITH YOUR TI99/4A

Standard audio recorders provide an inexpensive method to store your programs and data.

Due to modifications in the design of audio tape recorders, an increasing number of them can be difficult to use with computers, and TI have therefore produced a TI Recorder, designed for use with the computer.

You may be able to use cheaper recorders, but you should try them with program tapes recorded by someone else, before purchase. For ease of operation, the tape recorder should have a tape counter, and if you buy one with a tone control you may find it easier to use.

The TI99/4A is designed for use with recorders having 3.5mm jack sockets. Recorders with 5 pin DIN sockets may be unsuitable due to the different input and output levels of these machines.

Always use a mains power supply for your cassette player, to ensure the tape runs at the correct speed.

The magnetic particles on your tapes will pass on some of their magnetism to your tape recorder heads : this in turn will slowly wipe off your program. Regular use of a tape head cleaner and demagnetiser is strongly recommended, usually a monthly clean and demagnetisation are sufficient.

It is better to demagnetise before you notice any problems. Similarly a build up of oxides will prevent your recorder from picking up a proper signal, and may cause it to digest your tape.

Connecting your Recorder

You will usually be using only one tape recorder, and this is connected using the lead with two 3.5mm jack plugs and one 2.5mm jack plug. Plug the smaller plug into your recorders remote control, the plug with the red wire into the microphone socket, and the plug with the white wire into the earpiece socket. The other end of the cable is a nine pin plug. This is connected to the socket on the rear of the console : NOT the socket on the left, which is for the joystick.

When the leads have been connected, press your cassette PLAY button

and check to see if the motor is running (the computer console must be switched on). If the motor is silent, you will need to use the polarity reversal adaptor supplied with the cassette lead. This should ensure that your recorder now works. If you experience difficulty, refer to your dealer.

You are now ready to record a program, or try loading a commercial tape.

Loading a cassette Tape:

When your console has been connected to your tv and tape recorder, and switched on, you may load a prerecorded program from tape.

Press a key to obtain the menu selection and then press key 1 to obtain TI BASIC READY.

Now make sure the ALPHA LOCK key is DOWN, and key in: OLD CS1 and press ENTER.

The computer will now give you instructions on what to do: First rewind the tape and then press ENTER.

This is a good point at which to set your volume and, if you have them, tone controls. Start with the volume control at the mid point, and if available, set the tone control at maximum treble.

Now press cassette PLAY and then press ENTER. The tape should start running (do you need the polarity reverser? see above). The first part of the tape is a pilot tone, which is followed by a fluctuating signal.

You may obtain an error message at this stage, which will indicate that the volume is not set correctly.

NO DATA FOUND means that the volume is far too high, or far too low (or the cassette recorder isn't connected).

ERROR IN DATA means the volume is not quite right. Make a note of the tape counter setting when the tape stopped, then press R (to Read) and follow the screen instructions. When the tape is rewound, before you press PLAY again, make a small change in the volume setting, then try again.

If you are again unlucky, see if the tape counter is now reading a higher or lower figure. If it is higher, you need to move the volume a little more in the same direction. If lower, move it in the opposite direction then try again.

Tape recorders vary in their success at matching the requirements of the computer: on some it hardly seems to matter how you set the volume, but on others the tape will only load at one setting.

Tapes recorded by someone else will usually need to be loaded at a higher volume than your own, and may have a narrower range of acceptable volumes.

The reason for this difficulty is that tape recorders do not all have their heads at exactly the same level, and with a tape recorded on another machine, some of the signal will not be picked up on your recorder. So you need a higher volume setting to make up for this loss.

With a very few recorders you may find that your tape is running at a speed which varies from that of the machine the tape was recorded on, preventing the program loading. This is a very rare problem but you may come across it.

When the tape is loaded, the computer will instruct you to press cassette STOP then press ENTER. You will receive a DATA OK message and after a short pause a flashing square will appear : this is the cursor, and indicates the computer is ready for you to tell it what to do.

You will want to RUN the program, so type in RUN and press ENTER. The computer will take a few seconds to sort itself out but in due course the program will be available for you to play.

HOTLINE NUMBERS

The executive has expressed a desire to assist all members should you have some problems or questions, want to do some library swapping or borrow a book. This will be the place to look. Listed here are the members of the executive, committee heads, and others in the group willing to help in their specialized areas. 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, so I hope to add to this list. 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.

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CLUB BBS.....SET MODEM TO 8N1.....738-0617

* It's membership renewal time again! Lucie Dorais will be available at the November and December meetings to accept membership fees. Members are encouraged to renew as early as possible to avoid a last-minute rush. New members are very welcome.

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