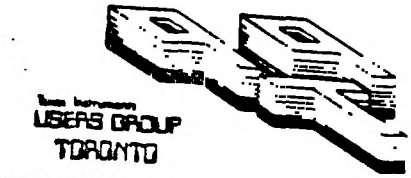
NEWSLETTER NINE-T-NINE

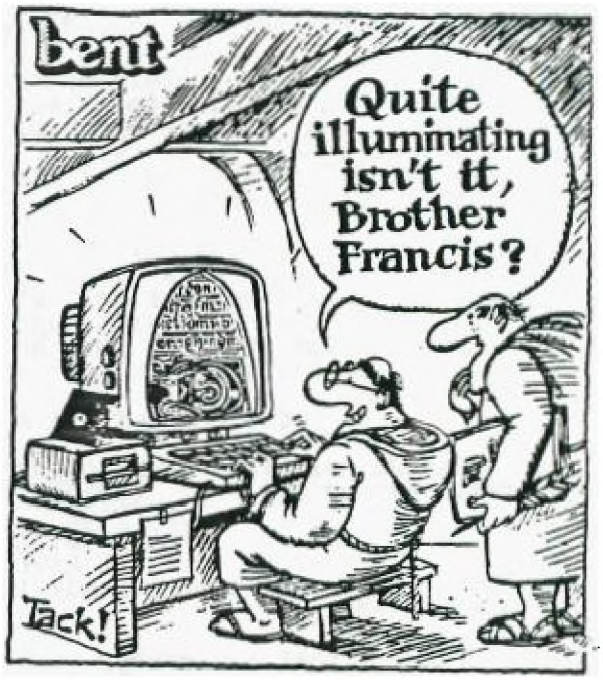


FOR THE TI-99/4A COMPUTER

MAY 1989 ISSUE

the martian comicals

"I have befriended three gullible natives and soon we are off to see a high-ranking Earth official."



From:

9T9 Users' Group
109-2356 Gerrard St.E.
Toronto,Ont.,M4E-2E2
Canada

To:

9 T 9 U S E R S G R O U P

E X E C U T I V E C O M M I T T E E

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VICE-PRESIDENT Neil Allen 255-2795
SECRETARY/MEMBERSHIPS Randy Rossetto 469-3468
TREASURER Peter Sandford 855-2107
OFFICER AT LARGE Cecil Chin 671-2052
LIBRARY DIRECTORS Gary Bowser 960-0925
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Steve Findlay (416)727-6807

N E W S L E T T E R E D I T O R

Steve Mickelson 657-1494

M A I L I N G A D D R E S S

9T9 Users' Group
109-2356 Gerrard St.E.
Toronto,Ont.,M4E-2E2
Canada

M E M B E R S H I P F E E S

FULL MEMBERSHIP	$30.00 / year
NEWSLETTER SUBSCRIPTION	$20.00 / year
DISK-OF-THE-MONTH SUBSCRIPTION	$30.00 / year additional

All memberships are household memberships. An newsletter subscription is only for those who do not wish to attend meetings, but 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 either our president, in writing, at the club address on the front cover or phone him or our membership director.

The meetings are usually held on the last Thursday of each month, unless stated otherwise. Consult this issue of Newsletter 9T9 for the date and time of the next meeting. Meetings are held at meeting room of Canada Remote Systems, 1331 Crestlawn Dr., Unit D, Mississauga,(Eglinton Ave./Dixie Road-Area), starting at 7:30 PM and ending at 10:30 PM. No meetings are held in the months of July and August. December's meeting usually takes place the second week of the month.

C O M M E R C I A L A D V E R T I S I N G

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

FULL PAGE	(10" x 7")	$50.00
HALF PAGE	(5" x 7")	$25.00
QUARTER PAGE	(2 1/2" x 7")	$15.00

Please have your ads camera ready and paid for in advance. For more information contact the editor.

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

N E W S L E T T E R A R T I C L E S

Newsletter 9T9 is published ten times a year by the 9T9 users group. Members are encouraged to contribute to the newsletter in the form of articles, mini programs, helpful tips, hardware modifications, jokes, cartoons and questions. Any article may be submitted in any form by mail or modem. We welcome the reprinting of any article appearing in this newsletter providing credit is given to the author and 9T9. If more information is required, call the editor. The name 9T9, Nine-T-Nine, Newsletter 9T9, Nine-T-Nine Users Group, and 9-T-9 Users Group are

D I S C L A I M E R

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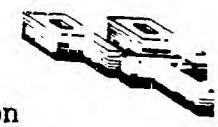
C L U B B B S

The 9T9 Users Group sponsors the TI Tower BBS, (416)921-2731, 300/1200/2400 BPS, 24 Hrs. Sysop: Gary Bowser.

TIdbits #29



By Steve Mickelson, President 9T9 Users Group
Compuserve 76545,1255; Delphi SMICKELSON; GEnie S.Mickelson

Having just completed attending/participating in two computer fests, Ottawa'a TI Fest and the Toronto Computes' Spring Compufest, I've come home with a wealth of TIdbits, hardware and tips.

In Ottawa, I the pleasure of chatting in person for the first time with Clint Pulley, Bud Mills, Chris Bobbitt, Charles Earl and Jim Horn. It was good to see again Jane Laflamme, Jeff Guide, Lou Phillips and Bob Boone.

The social mixer, the evening before the Fest, and to a lesser extent, the dinner banquet, the evening of the Fest, both were opportunities to discuss our favourite computer, the 99/4A. We also talked with TI friends from Peterborough, North Bay, Hamilton, Montreal, Halifax, Pittsburg, Rochester, Washington D.C., Quebec City, Ottawa and many other points.

I can only compare this Fest with the Ottawa event I attended two years ago, and must conclude this was much better, for many reasons. Though there were fewer, in attendance, than in 1987, the two hundred or so were better informed, and seemingly more enthusiastic users of the TI system. Sales of Shareware and Public Domain software, from the 9T9 table was brisk and steady. We gained four new members, (as we did at the Toronto Compufest). A gain of three new members, in my opinion justifies our presence at such an event. My thanks to those who helped out, especially to Randy and Gary for manning the booth for most of the time. Though I won't be able to attend Lima, I'm sure we all look forward to June's meeting and report of what happened there.

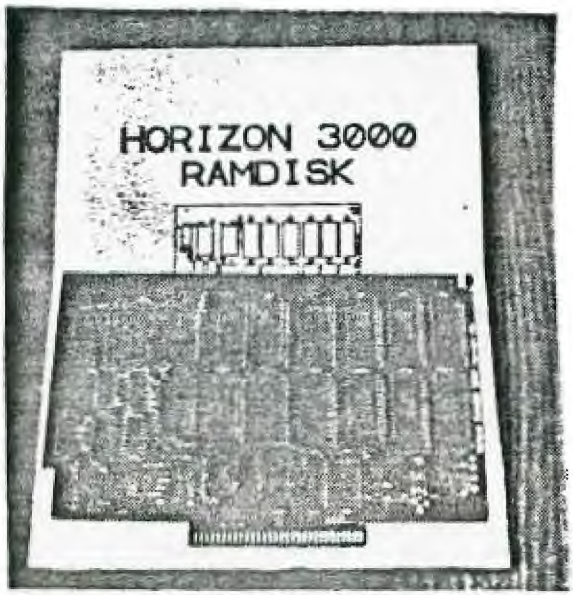
I was asked to pass-on to fellow Canadians, an invitation to attend a Fest, in Washington D.C., just after the "tourist rush" has passed, but while the weather is still warm, the middle of September. I will make an effort to attend. I'll try to get more info regarding the details of this fest, and post them here.

Hardware,Software and Tips:

The Fest had numerous software on display and for sale, including Music Pro by the same author of DM 1000; the Disk of Dinosoars, the Disk of Pyrates, plus many new graphic and music programs. The Press was not yet ready, though.

I finally got the H11 EPROM for the HFDC, so as to use it with MDOS. I did get a suggested fix for the colour flashes on my Magnavox Multisync by Lou Phillips, which is to put a 10K resistor from the RF terminal of the Geneve's video output to the C-sync line. As far as I can see this would put a reference input to the Sync input. I've yet to try this modification yet.

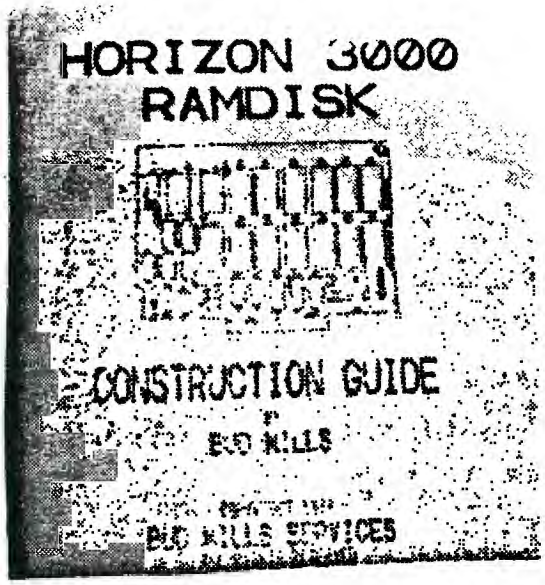
From Bud Mills, I got a copy of of Ron Walters Horizon Phoenix System for the Horizon RAMdisk, which I recently bought,(more on the HRD later). He showed us a version of the new 3,000 Horizon RAMdisk modified as a memory expansion for the 9640. These new cards, for both the TI and 9640, are described in literature handed out at the fest. This new card was the big hardware news of the Fest. See the additional hardware updates for Horizon owners.



Bud Mills and the new Horizon 3000 Card,(right).

New Card and Copyrighted manual (left).

Photos by S.Mickelson

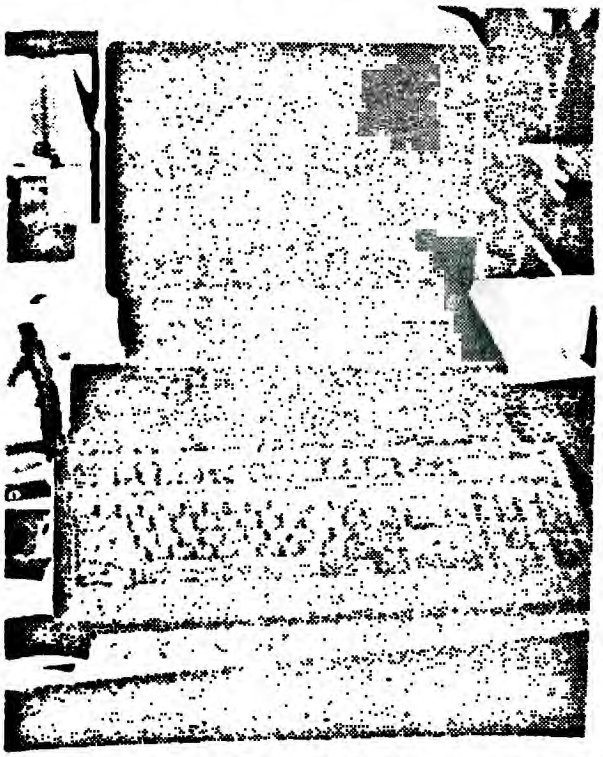


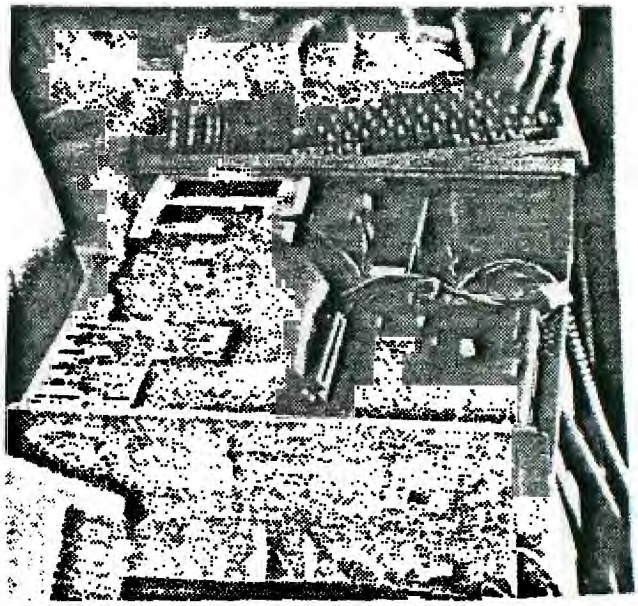
Left New Manual (left).

Right,fully constructed card with piggy-back memory card.

Photos by S.Mickelson

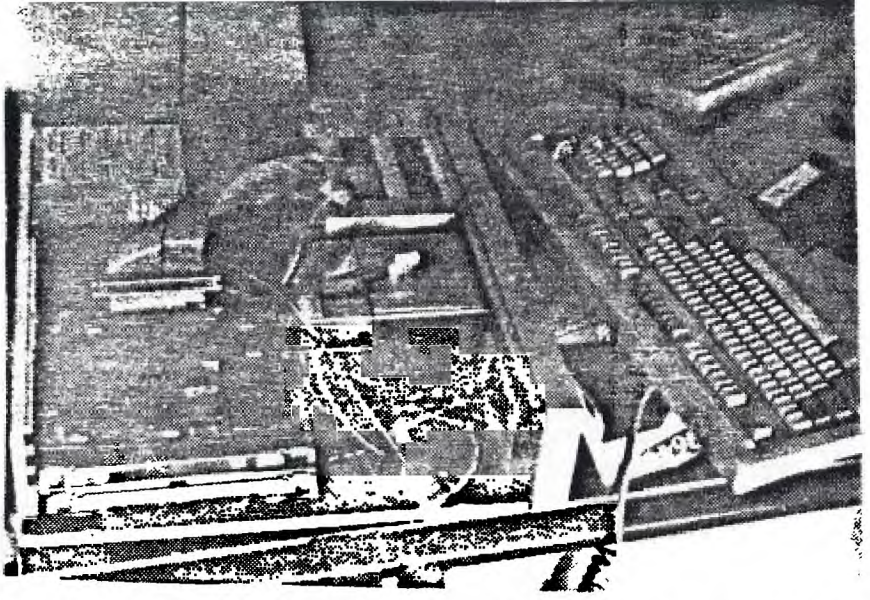
Lou Philips has a 9640 running in a 200-Watt, XT style case. The case has room for four drives, as shown it had two floppies and a hard drive. Four P-Box type cards were in the box, interconnected by ribbon cable and edge-card connectors





to the cards. I did not get a chance to ask what modifications were made to the boxes power supply or if the "turbo" and "reset" switches were active or planned to be active in the future. It would be nice to have a hardware reset like the one found on the old Navarone Widget. As far ar the turbo mode, I understand some experimentation has been done stepping-up the CPU clock from 12 to 16 MHz. Changing the clock speed and using software to remove most or all of the sixteen interupts to the 9938 video chip, would make the fast Geneve fly. Such a mod could conceivably be made by a user in the same way the Myarc RAMcard and 9640 0-wait memory mod's have been done.

So what advantage to speeding up the 9640? Lou expressed a keen interest in Jim Ballantine's / Gary Bowser's project with the Z-80 simulator. A turbo Geneve could then run Nintendo software, as it apparently uses the same video chip.



At the Toronto Fest I found a dealer selling a mouse made in Taiwan, identical to the Myarc mouse. Gary helped modify the IBM bus-type mouse cable to match my original Myarc mouse. He is checking into sourcing this mouse and hopes to make it available, possbly with software, in the near future.

I, also, found that my Star NB-24 Printer can use the same ribbon as the NX-10, this enabled me to get a bargain ribbon at the Toronto Fest for only $10.00. I hope this newsletter is easier on the eyes!

Finally I would like to say that the commercial databases, like Delphi and GEnie can be gold mines for us Canadians, as far as sourcing used hardware. I recently purchased a copule of items, by checking the "want ad" areas of these databases. There is an element of risk, but if you know the party, through his messages on the database, you may find it safer than dealing with an unknown commercial supplier, at several times the cost. Like anything used, there is an element of risk, but most TI-ers I feel are not inclined to tarnish there reputation among TI-ers by selling broken hardware, without a warning.

In this issue are a few pictures from Ottawa, I hope you find them of interest.

That's it for this month's TIdbits.

HORIZON CHANGE NOTICE - Copyright 1988 Bud Mills Services

These changes are recommended for ALL HORIZON RAMdisks and are compatible for use with the TI99/4a or Geneve.

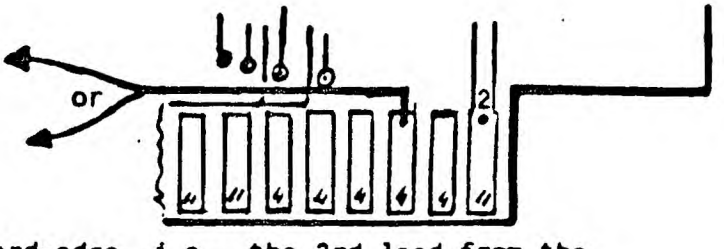
1. RESET on power-up

This change allows the computer to reset the HORIZON during the CPU power up cycle. The reset feature, as TI designed it, does provide a reliable method to hold the HORIZON in the shut-off state until the PE-Box voltage has been on long enough to stabilize.

The modification consists of the removal of one diode, one resistor and one capacitor. These parts are replaced by one wire from pin 6 of the card-edge connector (bottom edge of ramdisk card) to the positive side of the capacitor location.

HORIZON serial numbers below 100:
Remove C8, CR2 and R2. Connect wire to front (or left) hole of C8 location.

HORIZON serial numbers above 100:
Remove C1, CR3 and R5. Connect wire to + (positive) side of C1 location.



Connect other end of wire to pin 6 of card-edge, .i.e., the 3rd lead from the right on the COMPONENT side of the PC board.

2. DISABLE SWITCH

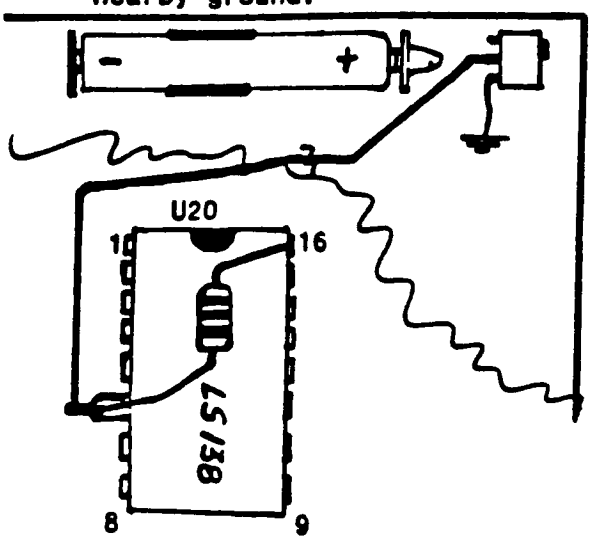
This modification provides a method to turn off (or hide) the HORIZON from the rest of the system. This switch allows you to turn off the ramdisk in the event of a system crash when the computer locks up. With the card turned off, you can power up the console and PE-Box, turn the card back on and proceed to re-load the operating system. No need to remove the batteries to erase the contents and in most cases the files may be recoverable. Other reasons for "hiding" the card could be a conflict between the ramdisk and a program you want to run - or you may wish to keep the kids out of it.

The mod is simple: We remove the voltage from pin 6 of U20 (serial 1999 and below) or U20A (HRD+,2000 and up) and reconnect it via a resistor (1K-10K will do) thru a SPST switch to ground. Closing the switch pulls the pin low and shuts off the CRU access at U20.

Bend pin 6 of the chip out, attach enough wire to reach the switch and connect the resistor from this pin to pin 16 of the same chip. Run the other end of the wire to the switch.

NOTE: The HRD+ circuit board on cards with a serial number below 1999 required stacking of U20. Attach the wire and resistor to the top chip's pin 6 and cut off the bottom end.

Mount a miniature SPST at the top back edge. Run a lead from one pole to a nearby ground.



NO DISK AUTOLOAD WHEN XBASIC SELECTED

This first appeared in TI SIG. If you have a Grand Ram or Horizon Ram Disk and use BOOT or MENU program, then this is for you. Type in the following, and save it to the Ram Disk. Put in the menu as an option, and be sure Xbasic is the cartridge active at the time. When the option is selected, you will immediately see the Xbasic prompt. This means that the **LONG DELAY** waiting for the **DSK1.LOAD** to time out is gone!

```
100 CALL INIT
110 CALL LOAD(-31952,255,255,0)
```

OPTIONAL HORIZON 32K MOD TO REPLACE PE-BOX 32K CARD

by John Guion and Bud Mills

Parts List:
- 2 ea. 1N34A diodes
- 1 ea. 74LS08
- 1 ea. MM82256-LP12 or 43256-12L
- 1 ea. 14-pin socket (optional)
- 1 ea. 28-pin socket (optional)
- Hook-up wire

Use of the optional sockets will allow you to replace a defective chip should a failure occur. Also, this additional memory could be disabled by unplugging the chips. The memory MUST be installed on top of the U11 chip, but its control pins and pin 28 (Vcc) must be isolated from the HORIZON card. Note that the address and data lines are shared and that the separation of the control lines assures proper data handling.

To install this modification, use the sketch below for reference and:

1. Place the 74LS08 chip (or the optional 14-pin socket) on top of U18. Bend all but pins 7 and 14 out for connection of wires later. Solder pins 7 and 14 of the chip or socket to pins 8 and 16 of U18. Pin 7 needs to be spread slightly to reach pin 8 of U18. Note: HRD+2000 cards can use U24 pins 7 and 14 only. The HORIZON 3000 will use U25 pins 7 and 14. (U24 and U25 were set up for the Phoenix mod.)

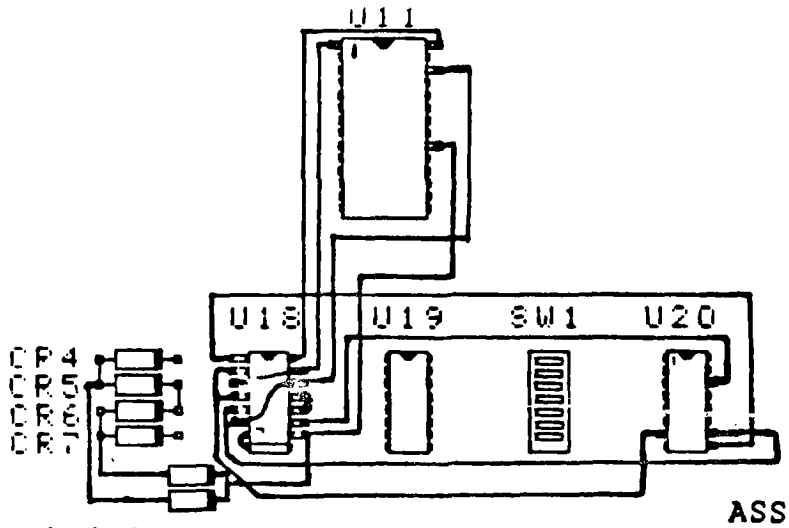
2. Place the 32x8 memory chip (or the optional 28-pin socket) on top of U11. Bend pins 1, 20, 28 and 26 out for connection of wires later and solder all other pins to U11.

3. Install the two diodes as shown below. Make sure the cathode band is oriented correctly, i.e., toward the new chip/socket on top of U18. Connect one anode to the anode of CR5, the other to anode of CR7. Connect both cathodes to pin 8 of the new chip/socket.

4. Connect wires as follows:
   From 74LS08 socket) pin 1 to pin 9 of U20 *) pin 2 & 4 to pin 7 of U20 *)
   pin 5 to pin 10 of U20 *) pin 9 to pin 14 of U20 *)
   pin 3 & 13 to pin 1 of U11 pin 6 & 12 to pin 26 of U11
   pin 8 to pin 20 of U11 and the diodes
   pin 14 to pin 28 of U11
   Connect pin 10 of the 74LS08 to pin 11 of the same chip/socket

   *) If U20 is stacked, make connections to the chip closest to the board. Wires may be run on the back side of the card.

5. Double check your wiring, plug in the chips (if sockets were used). Remove old 32K memory card from PE-Box. The easiest way to test if your new memory expansion works properly is to use Extended Basic. The SIZE command should result in a display of 11840 BYTES OF STACK FREE, 24488 BYTES OF PROGRAM SPACE FREE. A major deviation from these values indicates a problem. As a final test run an assembly language program (like DM1000). If a problem does exist, the program will not run.



SPRING THAW or GITTEN THE COBWEBBS OUT

-RANDY ROSSETTO

Spring seems to be the time to shake oneself down, dust oneself off and get going to do those things that have been in the plans all winter or even all year for that matter. We all seem to wait for that one big or little thing to give us a kick start (say that reminds me of a joke, but not here and not now) to get us rolling on the way to completing a given job or task, whether it be for our livelihood or just for fun, like this computer hobby we all enjoy and share.

Recently, I have had the good fortune to pick up another TI system and PE box along will a good supply of literature, namely a quantity of back issues of CLUBLINE-99 the newsletter of the Hamilton User Group. In scanning these issues a number of items came to light.

We, in the TI community are very fortunate to have people like Clint Pulley, who developed the "c" language compiler and was one of the first people in the area to get a Geneve 9640 to do software developement.

Also Ron Marissen from St. Thomas has made some very nice contributions in the field of technical articles on building the 32k Ram onto the motherboard in the console with two (2) versions published, for both the silver/black and the beige consoles, as well as some other techie additions for the 32k and the Horizon ramdisk.

Tom Arnold, the club president/treasurer and Tor Hansen, v-p/librarian have been involved in the club for many years, with bilines in many an issue of their newsletter, now renamed TI FOCUS since the April 88 issue.

I have set up a newsletter exchange with the Hamilton Channel 99 User Group and have been to a recent meeting and encourage others to attend if possible. We should also try to get to the meetings of the Oshawa TI Users Group and the Kawartha 99ers in Peterborough to show support and encouragement of the TI-99/4A and for the good social contact that most of use enjoy.

Two items that stem from the above encounter with the Hamilton newsletters are very interesting. One, is a quote from Harry Sparks in his Play With Sparky biline, Vol 5-2, November 1986, when he was looking for people to submit reviews of games and such, "The computer industry has a saying---GIGO (garbage in, garbage out). Computer Club magazines have another---NINO (no input, no output). Dust off your word processor or heaven forbid, use a pencil and paper and let's hear from those games players our there." This comment still stands today as your newsletter editors are always looking for input, so write an article for the newsletter of your choice!

The second item was a Tech problem noted by Tor Hansen, Vol 4-11, August 1986 whereby after converting to two half height drives there would be file problems and the drive light on one of the drives would come on and not go off. This was attributed to a bad connection and was repaired. I had a similar problem earlier this year in Feb. That is my #2 drive light would come on after a short while and lock up drive access to both my half height drives. This only happened after the system was up and running for five minutes or so. I swapped drives, disk controllers, memory cards and ramdisks and only got an improvement when I swapped to a more efficient set of half height drives. So in hindsight I checked the voltages. The +12 volts was OK, but when the +5 volts was monitored with a digital voltmeter, the drive failure coincided with a definite drop in voltage on the +5 line. To make a long story short, I replaced the +5 volt regulator with one rated for 3 amps instead of 1.5 amps as the original was rated and I haven't had a problem since.

FOR SALE ---- SPRING CLEAN-UP

TANDON FULL HEIGHT DISK DRIVE GOOD WORKING CONDITION, MODEL TM100-2A, DSDD -$50.00

TI SS/SD DRIVE (SHUGART 400L) - $25.00
JOYSTICK ADAPTER ---------- $15.00
(extension box type)
MODULES - PARSEC ---------- $ 5.00
THE ATTACK ---------- $ 3.00
DISK MANAGER 2 ---------- $ 5.00
HOUSEHOLD BUDGET MANAGEMENT $ 5.00
TERMINAL EMULATOR 2 ------- $15.00
ADVENTURE ---------- $ 5.00
AXIOM PARALLAX TI PRINTER INTERFACE - $50.00
SPEECH SYNTHESIZER -------- $25.00
STAND ALONE DISK DRIVE ---- $80.00

CALL RANDY ROSSETTO - 469-3468

HARDCOPY

by Steve Findlay

Well, here we are again. I'm sitting here scratching my head, wondering what I can possibly say this month. Not too much for me to mention as I missed the Ottawa Faire. From what I've heard so far, it was a successful event once again. I did hear that a few of the presentations were not scheduled so great. I personally wanted to go to hear most of the lectures and presentations. Conflicts in presentations makes the potential audience make a choice on which talk they would like to see the most, even though they may have wanted to see both. Consecutive talks with no schedule conflicts would be better attended by those that did not have to make a choice and would be fairer to the lecturer.

In one of my previous columns, I stated that I had ordered a subscription to a new TI publication by Bruce Forbes. Well, it's been almost three months and I have yet to hear or receive anything to do with Tid-Bits magazine. To be fair, perhaps my order has been lost in the mail. I will send an inquiry and let everyone know what happens. Until then, if you were planning to send in an order, it might be wise to wait for further reports.

The group's executive also had a letter roll in from Jacques Groslouis. Jacques is a group member from New Brunswick and he wrote to inquire about the possibility of copying articles from some of the newsletter articles I review. I have decided that if an out of town member wants a copy of an article mentioned in this column, the cost will be $1.00 per item (or chapter) unless the review specifically says that the article is more than 2 pages. Additional pages will be 25 cents each. The dollar should cover the cost of return postage and envelope and photocopy charges of 25 cents a sheet. This service is not intended to provide a profit for the user group but if the demand gets to be too much, then this policy may change. Advance warning will be given before a new policy is instituted. Any requests should be sent to me in care of the group's address. Hopefully, I will have personally replied to Jacques' letter before he receives this newsletter.

And away we go...

BINDER #2 (supplemental)

* A MacFlix tip on changing the horizontal print density. (Channel 99 - Mar 89)

BINDER #5 (supplemental)

* Another 32K in-console modification. This one is appealing because there are only four chips involved. Three gate chips and one 32K chip. Do not miss the corrections in the second article. (Ottawa - Feb 89 and Mar 89)

BINDER #7 (supplemental)

* An Extended BASIC listing by J. P. Hoddie called Column Manipulations. For use with TI Writer or MY-Word files. (BCS - Feb 89)
* An article on PROGRAM image files and how Assembly Language and BASIC programmes can be recognized. (Cin-Day - Apr 86)
* An Extended BASIC subprogram listing called CALL PLOT by Art Heino of Picasso fame. (Cin-Day - Feb 89)
* An Extended BASIC programme called XB SCREEN DUMP that allows the printing out of XB screens. (Cin-Day - Feb 89)
* An article on repairing Extended BASIC cartridges. (Cin-Day - Feb 89)
* An interesting Graphics and Character chart showing characters and pattern locations in BASIC and assembly language. Colour locations are also included. (Cin-Day - Feb 89 Mar 89 Apr 89) * An article on In and Outdenting using TI Writer. (Cin-Day - Feb 89)
* An article that explains the meaning of "K" when used to describe computer memory. (Cin-Day - Mar 89)
* A comprehensive User Group listing that the Cin-Day User Group exchanges newsletters with. There are over 190 groups in the list! (Cin-Day - Mar 89)
* An article that FULLY describes merge format files (DIS/FIX 163) and how to write a programme within these files. BASIC commands are entered using the CHR$() command. (Cin-Day - Apr 89)

BINDER #8 (supplemental)

* For those that own TI Base, a good menu command file. (Tacoma - Apr 89)
* The announcement that Texaments will soon be carrying an MBX tester programme designed to test all the functions of the MBX system. A mention also of utility routines that can be used to drive the MBX system so that new software can be written to take advantage of the powerful capabilities of the MBX. (Lehigh 99ers - Feb 88)
* An update on the Zenoboard that I reported in my last column. The availability date is around July. (PUG - Mar 89)

BINDER #9 (supplemental)

* A follow-up article (actually a BBS message printout) on converting power supplies for the TI 99/4A. (HUG - Jan 89)
* An article on changing disk drive track step and interlace settings on the actual disk drive logic board. (HUG - Jan 89)
* An Extended BASIC tinygram (tiny program) listing called Style Label. This programme prints out labels. (QB Monitor - Jan 89)
* A 9 page tutorial on troubleshooting problems with your console. Written by John Guion, a hardware techie that has developed upgrades for TI disk controller and RS232 cards as well as Super Extended BASIC. (QB Monitor - Feb 89)
* An Extended BASIC tinygram listing called Name That Phone. This programme will generate a letter equivalent for telephone numbers that do not include the numbers "1" or "0". Could be handy for BBS operators. (QB Monitor - Mar 89)
* An Extended BASIC tinygram listing called Flexi-Label. This little gem will print out video cassette labels. (QB Monitor - Mar 89)

BINDER #14

* A tutorial on mathematical operators (+, -, *, /) in PASCAL. (Spirit 99 - Jan 86)
* An article on TI Writer control key commands. (Spirit 99 - Apr 87)
* An Extended BASIC programme listing, with speech, called Oracle. (Spirit 99 - Jul 87)
* An Extended BASIC programme listing called Word Hunt. It is a word search generator. (Spirit 99 -Jul 87)
* A complete listing of all the hidden commands available in the Personal Record Keeping module. (Spirit 99 - Jul 87)
* A contruction project on how to build an A-B Box. This box is used to hook-up 2 printers to 1 computer or 2 computers to 1 printer or any other combination you can think of. (Spirit 99 - Apr 88)
* A short Extended BASIC utility programme that will convert TI Writer Version 2 files to Version 1 files. (Spirit 99 - Jan 89)
* The mention that a cassette high speed loader is available from the PUG User Group. I believe that 32K is required to run this programme. Send $5.00 to: Pittsburgh User Group, P.O. Box 8043, Pittsburgh, PA 15216, Att'n PUG Librarian.
* An article called DISK FIX that explains how to recover a "blown disk". (Spirit 99 - Jan 89)

'TIL NEXT MONTH ... CALL LOAD(-31962,32)

LGMA Products announces 9640 FORTRAN

LGMA Products announces the availability of 9640 FORTRAN, the finest compiler for the 9640 FORTRAN GENEVE computer!

Alan Beard, author of 99 FORTRAN and spokesman for LGMA Products, says that 9640 FORTRAN is the most exiting language development in the history of the TI-99/4A and MYARC GENEVE product lines.

9640 FORTRAN runs under the 9640 GENEVE computer native MDOS operating system, version 1.14, and has the following outstanding features:

1. A full screen text editor with string search/replace capabilities and FORTRAN tab stops.

2. An optimizing FORTRAN compiler. Contains many FORTRAN 77 features, including BLOCK IF statements, and six data types (integer *1, integer *2, integer *4, real *4, real *8, and logical *2). An extension of the PROVEN 99 FORTRAN compiler.

3. A FORTRAN linker, which allows linking FORTRAN and Assembly Language (TI E/A) modules.

4. Execution support package, which includes floating point support, integer *4 arithmetic, and transparent MDOS input/output interfaces.

5. An extensive FORTRAN Symbolic Debugger, which includes features never before seen on the TI-99/4A or MYARC GENEVE, such as:

   - o Breakpoints by line number and FORTRAN label
   - o Built-in Disassembler
   - o Source View Capability
   - o Memory Display/Modify in byte, word, longword
   - o Built in command help

6. Three FORTRAN libraries, containing over 160 FUNCTION subprograms and SUBROUTINEs, providing the most extensive interface library of any language for the TI-99 or MYARC GENEVE, and interfaces to almost all of the MDOS graphics, sound, memory, utility, and I/O XOP libraries.

7. Four demonstration programs are provided in source form, including:

   - o A spreadsheet calculator
   - o A sine wave plotting program
   - o A fractals fancy graphics program
   - o A disk/file sector editor utility

9640 FORTRAN produces native MDOS executable programs, just type in the name of the file and it will execute just like assembly language programs!

Generous documentation is provided in the form of a 230 page user manual, describing all features and functions of the FORTRAN system, including many examples. Also included are two double sided/single density diskettes and a ninety day limited warranty.

9640 FORTRAN will be available at the TICOFF computer show on March 18, 1989, and orders may be taken NOW for delivery on that date.

9640 FORTRAN is available for a suggested retail of $69.95 from Disk Only Software. Additional dealer information to follow.

The following comes from GEnie:

M-DOS OFFER

Chris Bobbitt,Asgard Software

Date: 890411

This is an offer to programmers interested in developing applications for the M-DOS environment. While details are provided within, this offer is of interest primarily to programmers in c99, Fortran 9640 or Assembly.

M-DOS PROGRAMMERS WANTED!

Asgard Software is actively seeking programmers interested in developing programs for the Geneve 9640's M-DOS environment. We are interested in programs written in c99, Fortran 99, or Assembly language in any of the following catagories:

GRAPHICS
ENTERTAINMENT
UTILITY SOFTWARE
PRODUCTIVITY SOFTWARE
DATABASES

If you are working on a project, or just planning one, consider us before publishing it yourself or elsewhere. Asgard Software gives advances against royalities of up to $1000, depending on the project, as well as some of the highest royalties in the industry (figured on gross and not net profits). Additionally, when you publish your work with Asgard you become a partner, and not an employee. Any copyrights remain your property, and contracts are for a mutually agreed upon period.

Asgard Software has been a software supplier to the TI-99/4A world for over 5 years. We have published works by some of the most well known programmers in the TI world, including Warren Agee, John Behnke, Tom Bentley, Robert Coffey, Charles Earl, Ken Gilliland, Donn Granros, J. Peter Hoddie, Ed Johnson, Jim Reiss, Mickey Schmitt, Travis Watford, Tom Wible and Harry Wilhelm. We didn't become one of the largest TI-99/4A software publishers by chance, either. We are a multimedia company that publishes magazines, books, and software on disk, cassette and module. We are known for producing quality products, and standing by them. If you'd like to join our team, tell us what you are working on or what you have already written.

Send letters to Asgard Software, Attn: Chris Bobbitt, P.O. Box 10306, Rockville, MD 20850,USA

Or, send electronic mail to 72561,3241 on Compuserve, or C.BOBBITT on GEnie.

TechTalk

-By Mike Maksimik

Some of you may have followed TI's developments in the time that the 99/4A was at it's childhood. All sorts of plans, marvels, new things for the home computer that "was ahead of it's time." There were several peripherals developed by TI but were only released in tiny quantities, mostly to the TI employees that got the pick of the crop. Some of these never made it to the production lines, but only a few prototypes survived.

The modem card, which essentially was a Novation Cat 300 baud modem, was placed on a peripheral card, and a DSR ROM was given it to control very low-level functions, such as modem-to-vdp RAM interrupt routine, powerup routine, etc. It would work with a command module, like TE II just as the disk manager module works with the low-level routines in the disk controller to perform the DOS functions. Only a very few of these survived.

Another little known card was the IEEE 488 bus controller card. It contained the TMS9914 GPIB (general purpose interface bus) that allowed the lab and mechanical equipment that used GPIB to interface to the TI. One could access the GPIB like a file device. This same standard is found in unexpected places. Any of you have a commodore 64? The communications bus used to connect it's ring-style bus of peripherals is a modified GPIB, one of commodore's own design. The SCSI interface (small computer systems interface) is essentially a multi-GPIB, allowing very fast buffered serial transfer between storage devices. SCSI also has interrupt lines to alert the host that data is waiting to be read or written. The VCR controller, a $500.00 range peripheral, along with support software, was introduced as a means to combine video from a VCR and the video from a TI. The card would control playback, hold, framing, and other functions. Digital Research created a similar product to control videodiscs that attached to an apple or a commodore 64, although much later than TI's development.

The debugger card, a little known device, was in existence when the 99/4A was born. In fact, it's design can be rooted to the support hardware in the 990 minicomputer series. Essentially, the TMS9900 is a minicomputer on a chip. The editor/assembler GROM was a virtual image of the DX10 assembler used on the 990 minicomupter. Some directives one would only find on a minicomputer exist in the editor/assembler package, but were dormant in the 99/4A. The debugger board was designed to bring the 99/4A closer to a minicomputer's environment. The DEBUG program, included with the editor/assembler package, has several features that cannot be used without this piece of hardware. In fact, the editor/assembler looks as if it was taken direct from a 990 itself. The only added features were the GROM utilities, sucha VMBW, DSRLNK, LOADER, etc. that didn't support the features that a 990 could handle. It's too bad that TI wishes to keep the plans for this card on ice, it would be a dream to program with. It allowed multiple breakpoints by using the XOP 3 opcode, which would allow you to step your program through and look for errors or miscalculations. Although we can do this through software, the debugger board used a hardware approach.

The design of this board, and what it contained, are up for grabs. If anybody knows, I'd appreciate you sharing with the rest of us. Send me a letter. Still another rare peripheral was the GROM library peripheral. It essentially was a super-widget that could access ALL of the GROM in the cartridges. This would be handy for TI BASIC, since TI BASIC searches external GROM for subprograms. TI extended BASIC does this too, but doesn't search DSR ROM when a program is running. Modules like TE II, personal record keeping, and extended BASIC could all be plugged in and the CALL routines could be accessible to BASIC. BASIC could use the commands it wished to whatever, and all you had to do is plug your favorite "flavor" modules into the library peripheral to get the necessary language expansion. Imagine a GROM cartridge giving advanced graphics to TI BASIC, another for print spooling, still another for expansion memory control. Others for high speed cassette routines, etc. so the language could expand by adding cartridges. It's the same technique used with the peripherals: the computer never becomes obsolete, because it automatically responds to any new device attached. This is true of the library peripheral. This is another device I would LOVE to see.

Some of us have the HEX-BUS controller. In the days of the 99/2, the CC40, and the 99/8, the hex-bus controller was introduced for the 99/4A to allow compatibility with these devices. Essentially, they were designed like the commodore 64's peripheral system, where a slow serial transfer was appropriate for the hex-bus devices, a disk drive wouldn't be feasible. So TI never considered the HEX-BUS disk drive. The Wafertape drive, the CAT modem, the RS232/parallel interface, and the 4-color printer, were all developed. All were battery operated and could fit in a briefcase, as did the CC40. For the 99/4A, it was an inexpensive means to expand.The hex-bus controller was a small device containing a DSR ROM that controlled the I/O drivers which "spoke" to the hex-bus peripherals. Since the main use was for the CC40, it wasn't pushed for the 99/4A. The 99/8 could also rely on the PE BOX for it's devices. It had it's own special FLEX CABLE card, which used some special control lines to expand it's own capabilities.

Since the 99/8 used a TMS9995, the same as the GENEVE, it could use the extra 3 address lines in the PE BOX, giving a total address space of 2 to the 19th power, or 512 k of directly addressable memory. Since some of these banks were probably switched, the address space grew to a total of 4096 k, which is sufficient for MOST of my needs. The speed of this processor was greater, and it's throughput was even greater, but more on that later. Some other control lines were used, some to indicate a 9900 or a 9995 present in the system, some to allow multi-level interrupts, still others to initiate HOLD sequences, which are found on the mainframes, and large multi-user systems as a way to deal with wasteful processing, and interrupt idling. TI had a HARD DISK controller in the plans, probably MYARC's, but the technical data I have is 1982.

I own a rare card. Some of you may remember a company called A/D electronics, out of Sacramento, California. They produced a control card which allowed sampling of environmental data through an 8-bit analog-to-digital controller. This device allowed hookups of many items, such as temperature probes, light transducers, etc. and was mainly used as a scientific device. Some possible uses included home control, because it also contained a real-time battery backed clock. Plus, there were separate digital inputs and outputs, for switches and relays, respectively. My main use for the A/D card, FIRST ADE, is a mouse. The RADIO SHACK color mouse contains two potentiometers turned by a rolling motion of the mouse. The potentiometers, when interfaced with the ADC0809 chip, (two channels, x and y) gives me mouse control with TI ARTIST. I wrote the DSR myself, and have been using this device for about a year and a half. The MBP clock card is a similar device, although it does not contain a digital input or output array. The ADE card, however, could also switch external relays, or sample data on 16 lines (8 in, 8 out). If timing was correct, an 8-bit parallel interface was possible. I still use this card, and the clock is handy for keeping my p-system master disk up-to date.

The FORTi music card was a device which allowed one to produce sound on not one but 4 extra TMS9919 sound generators. By arranging the frequencies on the 12 music channels available, different waveforms were possible. Now, with the FORTi, sounds even a c-64 owner could envy were possible. And, there were 4 percussion channels independent of each other. I can imagine "AXEL-F" running on this card!!

And of course, we all know of the more common peripherals, the triple tech, the disk controllers, the 32k cards, te rs232 cards. Even these make our computers sophisticated enough to meet TI's long dead expectations. I also own the p-code card, and another article is devoted to THAT!

I mentioned the TMS9995 earlier. Just what exactly is a pipeline microprocessor? Well, the 9995 is not only fast, but it has a distinct advantage over others in it's class, even the intel 80386. Those processors rely on expanded address lines and increased instructions to increase throughput. There was a deeper approach, one that TI envisioned in the 9995. A pipeline microprocessor is one that incorporates special hardware that allows it to have more than one part of the microprocessor running at the same time. These CONCURRENT functions provide that while one instruction is being decoded inside the chip, another is being fetched from memory. Still another is being executed after it has been decoded. At best, with top-down code, and very little jumps, the microprocessor can achieve a throughput 3 times, or more, depending on the level of pipelining, over a regular processor running at that speed. For example, if we put test code into a 9995 and a 9900 running at 12 MHZ, the worst case is that the two run even. But the 9995 can pipeline, and with the pre-fetch and post-store the 9995 can LOOK like it's running 16, 20, or even 24 MHZ. And with the reduced instruction set in the control ROM, the 9995 has a distinct advantage over an 80386, it's MUCH cheaper to produce. The control ROM is a hard-wired design, while the 80386 has to be programmed externally. It is an easy device to interface to a memory system, and with no-wait state static RAM, the memory-9995 combination (up to 4 megabytes) can be phenomenal.

Currently, I am working on a software project. It's a new DOS for the TI, somewhat reminiscent of COMMAND DOS that ryte data released some years ago. However, there is no image file required because the DOS I have resides in a E/A supercart, and the utilities that it needs are extracted from the E/A GROM--that way, I can restore the lower memory expansion to a defined state very quickly without reading from a disk drive. The DOS is completely self contained, and will provide a choice for you on the master title screen. I am a college student, doing projects to complete my final years of undergraduate study in computer science. This project was inspired by a need for a better operating environment for the TI as well as a need for me to see if it could be done. Well, I have succeeded! The DOS uses the DSRLNK utility to attach to the low level device drivers. It gives you the familiar A> DOS prompt, and will mimic DOS to a degree, but with one delightful exception--the DOS is being written by me, and I can have it do whatever I want it to! I will no longer be a slave to incomplete DOS commands or ambiguous and useless syntax, often the product of overpaid software developers. The commands are clear and precise, and the DOS is very short, only about 5k at this writing. Since most of the DOS is already present in our machines, in places like the E/A GROM, the disk controller ROM, the RS232 interrupt routine--all of these put together with the right glue can make a great DOS, and all I did was to provide the necessary glue for the parts, and it works! It has a batch file load and execute, D/F 80 loader (compressed/uncompressed), program file loader, dos utilities (FORMAT, COPY, RENAME, DELETE, ASSIGN) and screen control commands (WAIT, BEEP, CLS, GOTOXY, PRINT, ECHO ON/OFF) and "smart" control keys, as well as a 255 character input queue for type-ahead. Many of the commands are internal, and they reside only in the supercart. Other commands can be created from object code, which you can create from any one of the compiling languages, or the assembler (i prefer the assembler) and by simply typing the name of the file at the command prompt, the file will be loaded and executed.

I hope to have some sort of language compiler for DOS, such as a basic/pascal compiler, to facilitate creation of programs and utilities. My plans include a file transfer utility (terminal emulator), windowing, an 80-column editor, and multiprogramming. If for no other reason, then to gain experience and to enjoy doing it on my $49.99 TI99/4A. Of course, I wouldn't dream of charging anyone for this DOS, and I've had some interesting suggestions for names. "F-DOS" by our own editor, BOB DEMETER, for FROGMAN-DOS, since my "other" hobby is SCUBA DIVING, "XIOS" for eXtended Input Output System, and whatever...I am using version 1.24, which is relatively complete. I would just like to add the bells and whistles, plus write a manual on it's use.

Now for some more TechTalk. If you are confused as to why computers like the c-64 and the apple all have DOS commands built in...well, the designers of those computers anticipated a disk system, and available to most users, so the operating system and BASIC language all had the DOS commands either in the disk unit itself, or in a disk BASIC which loaded in on powerup. Since TI did things a little differently, they preferred to make DOS a separate thing, with a disk manager module to handle disk tests and formatting. It seemed a little annoying that in order to rename a file from BASIC, you had to either load the program and save it under another name, or if it was a DATA file, you had to OPEN it and read all of the data, then re-save the data to disk under another OPENed file name. This could be terribly inconvenient to users, but consider what the others have...the c-64 must send all of it's DOS commands through a command channel, and the disk drive will run itself. It essentially is another computer, a 6502 based one, to be exact, that only accepts commands from a serial line and performs all of the disk commands. Imagine.. a computer so STUPID that you need TWO computers to run any disk software...and you would be paying for TWO computers also. Commodore doesn't tell the average users that they are essentially using TWO computers instead of one.

Apple computers are also based on the 6502 series of microprocessors. Apple used an old method of running it's computers...just write a DOS and put it on disk, and when the computer is powered up, the DOS is loaded. Funny thing, though. Although Apple boasts of 64k of RAM, much of that is used to hold the resident DOS, and BASIC. If you want to load a program which needs the space allocated by DOS, you are out of luck, since your program might make DOS calls to perform disk functions. And if DOS were overwritten, then when your program is finished, it must go back and load it all over again. And 6502 is not exactly the processor I would waste terribly expensive memory on, since it has a very limited instruction set, and things I take for granted now, like memory-to-memory word moves, multiplication, division, and subroutine branching would be terrible to implement on an apple of commodore 64. I just don't know how they have survived this long...

Our little TI, on the other hand, has a wonderful method for handling new devices. The GROM header, present on all ROM in the expansion box, and all command modules, is the link between the unknown and the known. It allows us to plug in new devices at any time in the future, and the operating system will immediately recognize the device, as if it were there from the beginning. This is what will keep our TI computers alive. The method of access is very similar

to the IBM pc method. Each peripheral card has a certain address in the serial addressing fields. The operating system can turn on a card singly, look at what occupies a pre-defined memory area (>4000 to >5FFF for us) and can determine if the device exists. With the IBM, certain logical names are assigned to a physical device address, such as COM1:, TTY:, A:, LPT1:, and so on, and can be changed according to the user's wishes. This requires a small modification to DOS to accommodate the new device, and from then on, a new sub-version to dos is created. If the device is removed, an error will be issued since DOS can no longer locate the installed device.

The GROM header in the TI provides a standard table for finding a device quickly and efficiently. All of the devices use a pre-decoded 8k block of memory, and 8k is plenty for most devices. Since we are not limited to 64k of total address space (via memory paging in the MYARC or HORIZON ram cards), larger programs may occupy that memory and give our TI's a greater running capability. The IBM uses a segment register that is pre-decoded to page in banks of memory, which is essentially the same way the HRD or MYARC does it, so memory expansion is no problem. The safe area in the TI is the first ROM bank, which is the invaluable interrupt routine and powerup routines. the SUPERCART is the only save RAM alternative for a kernel or DOS, since it is battery backed and it remembers all the changes you have made to DOS. In the CRU, the only area you could use for your own bit-twiddling is the >400 to >1000 area, which is not decoded presently and could be wired to something (I will let you imagine that). It would not be a difficult task to interface an IBM card to the TI, provided you had the correct cross-wiring, and a ROM to control the new device. A few of us in the chicago users group will attempt this. The price of IBM cards is falling like a rock, and I don't see any interfacing pitfalls.

Chip may revolutionize its field, Toshiba claims

Toshiba Corp. said Feb. 10 it had developed a memory chip the size of a thumbnail which could make floppy and hard disks obsolete within three years.

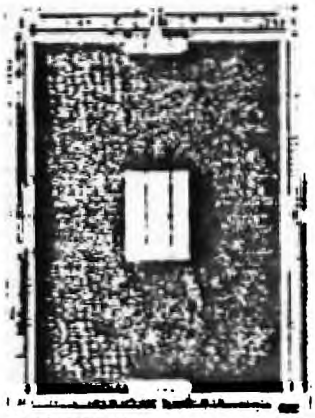
It is the world's first 4-megabit, electrically erasable, programmable, read-only memory (EEPROM) chip — the highest level of integration ever attained in this kind of memory device.

The large-capacity, ultra-fast chip also has the advantage of not requiring any rotary drive mechanism, as floppy and hard disks do, a Toshiba official said. This will help reduce the overall size of a computer system sharply, he said.

An EEPROM is a "non-volatile" memory device which retains programmed data even after power is cut off. EEPROMs also enable users to erase or rewrite stored information electrically.

Toshiba will publish a paper on the new technology at a meeting of the International Solid-State Circuits Conference slated to be held in New York Feb. 15-17, the official said.

With conventional EEPROMs, it is difficult to accomplish higher levels of circuit integration, as their memory cells (the basic unit for storing information) have a more complex structure than other types of computer chips, such as the widely used dynamic random access memory (DRAMs) chips.



TOSHIBA'S new memory chip is as tiny as a thumbnail.

Toshiba researchers said they created a unique, streamlined memory cell structure. The design cut dramatically the number of cell components and the size of one memory cell to only 12.9 sq. microns, one-sixth of the cell of a conventional EEPROM, the official said. One micron is one-1,000th of a millimeter.

In a conventional EEPROM, a pair of transistors — a memory transistor and a select transistor — form a memory cell to store one bit of information. The memory transistor stores binary data, "1" or "0," while the select transistor acts as a switch to connect the memory transistor with the peripheral circuit.

JAPAN TIMES FEB. 25/89

END 99 er's

Japan develops computer model

Agence France-Presse

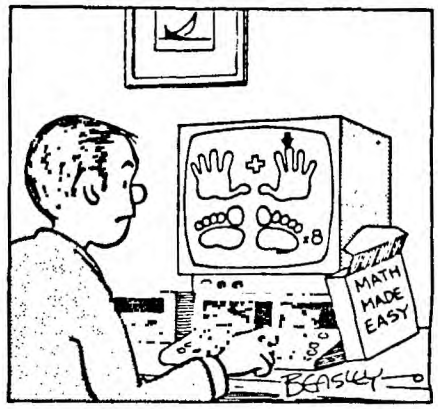
TOKYO

Japanese researchers have developed what they claim is the world's first experimental model of a fifth-generation computer, the Institute for New Generation Computer Technology says.

The institute, set up by the government and the computer industry in 1982, has been conducting a program, costing about $490-million (U.S.), to develop a computer that can "reason" from data retrieved from an intelligence base.

The fifth-generation computer can memorize information like the human brain and can process different flows of information simultaneously, the researchers said.

TOR GLOBE AND MAIL NOV 21/82



9T9 LIBRARY TREASURES

BY

ANDY PARKINSON
LIBRARY DIRECTOR

FOR APRIL 89 MEETING

STAPH GAMES XB/32K TrIware Good Quality
Disk includes: Joker Poker, Black Jack, and Wheel of Fortune SSSD Cost $2.00

INFORMATION SYSTEM Public Domain
Assembly program to make a slide presentation. Sixteen screens, 16 colours, 256 characters are available to you. Each screen can be saved in TI Artist format. Runs EA#5 or Loader. SSSD Costs $2.00

Coming Soon A Graphics Operating system in XB using a Joystick. I hope to have it for the April Meeting. SSSD TrIware Cost $2.00

DISK OF THE MONTH 9T9-89/4

ARGOIDS Assy game runs EA5 or loader & Joysticks
BOOT New loader from MUG loads XB/32K or EA. Many new features. Docs included TrIware
COLUMN TEXT Vers 3.0 A very well done columnizer written in XB/32K. Full docs. TrIware.
MOLACUBIC XB/32k game puzzle
SCREEN EDITOR vers2.0 XB/32K edits a screen for video tapes etc. TrIware includes a sample screen.
KEYBOARD JOYSTICK TESTER. In assy or XB loader Test Joystick or keys Public domain source Files are included Archived by ARC3.02

THIS DISK SELLS FOR $3.00 AND INCLUDES THE DISK SSSD SAVE $1.00 AT THE MEETING BY COPYING IT TO YOUR DISK

ARTIST PICTURES GF/GB Each disk contains 14 b&w pictures for TI Artist picasso, Graphx, RLE, etc. Each SSSD $2.00

ARTIST FONTS INSTANCES
DISKS 9,10, & 11 PD Small pictures & fonts for TI Artist 2. Each disk SSSD Cost $2.00

MATH ACCURACY

HERE IS A LITTLE PROGRAM WRITTEN IN BASIC TO COMPARE THE MATH ROUTINES OF DIFFERENT COMPUTERS IN BASIC.

```
10 FOR C=1 TO 100
20 IF SQR(C)<>INT(
   SQR(C))THEN 40
30 PRINT C
40 NEXT C
```

THE 99/4A FINDS ALL 10 OF THE PERFECT SQUARES AS DOES THE TI-PC IN MS-BASIC. THE TRS-80 MODEL III [illegible] 99/4 [illegible] THE CORRECT RESULT WHERE OTHERS FAIL.

THIS PAGE PREPARED WITH PICASSO PUBLISHER vers1.1 AVAILABLE FROM THE 9T9 LIBRARY FOR 2.00 SSSD

EDITORIAL

Free the Mario Brothers

Suppose for a minute that an electronics company sets out to capture a large share of the small-computer market. To do so, it designs and builds a computer that is superior to anything else available. The company's share of the market grows, but software suppliers find that the computer's architecture prevents them from independently developing programs for the computer.

In order to sell their programs, the software suppliers must first submit the programs to the computer manufacturer, which accepts them or rejects them. If the manufacturer accepts a program, it extracts an exclusive license from the software developer, manufactures the program itself, and finally sells it back to the developer. Only then can the software developer put the program on the market.

If the situation above seems implausible to you, you haven't kept up with the new video games. Nintendo of America, a manufacturer of popular video games such as Contra and the Super Mario Brothers, has been using just such a strategy to lock up about 80% of the video-game market in the US. Until recently, Nintendo has controlled 100% of the add-in market for compatible game cartridges. Nintendo exerts control by incorporating a proprietary lock-out chip that prevents the use of "unauthorized computer software" in the game unit.

By applying reverse-engineering techniques, Atari Games Corp and Tengen Inc recently came up with a method that obviates the Nintendo security chip, and they began to market games for the Nintendo system without first obtaining Nintendo's approval. Atari Games also filed an antitrust suit against Nintendo. Instead of meeting the competition head-on, Nintendo countersued, claiming, among other things, that a patent covers the lock-out chip.

Nintendo also claims that the lock-out chip promotes quality software—which only Nintendo may judge—while simultaneously preventing an oversupply of game cartridges, which Nintendo also controls. Keep in mind that in Japan, Nintendo's games don't require a lock-out chip, because, according to Tengen, Nintendo already claims 90% of the Japanese video-game market. Why spend money on an extra chip when you own the market?

Clearly, Nintendo's efforts seem to be aimed at securing control of the US video-game market. Despite the institution of the patent—which was intended to protect inventors' rights, not to confer a monopoly on any one company—the use of technology to protect markets and establish a monopoly hurts suppliers, hurts customers, and hurts the electronics industry. Years ago, the courts told large computer companies that they couldn't force buyers to purchase bundled hardware and software from one source. Likewise, copier companies were told that they couldn't force customers to buy supplies from only one source. Nintendo should take a close look at those lessons, and use technology to compete, not to monopolize.

Jesse H Neal
Editorial Achievement Awards
1987, 1981 (2), 1978 (2),
1977, 1976, 1975
American Society of
Business Press Editors Award
1988, 1983, 1981

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Does this sound familar?

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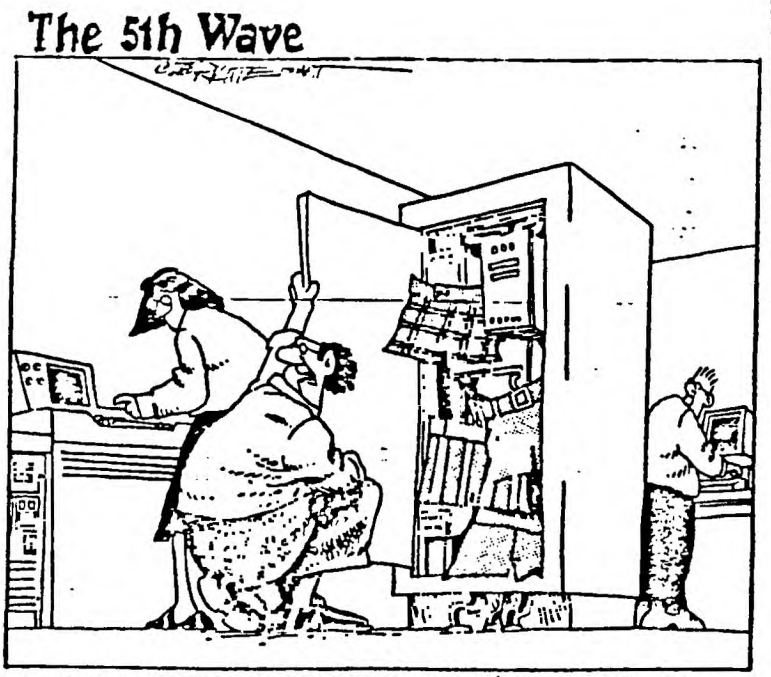
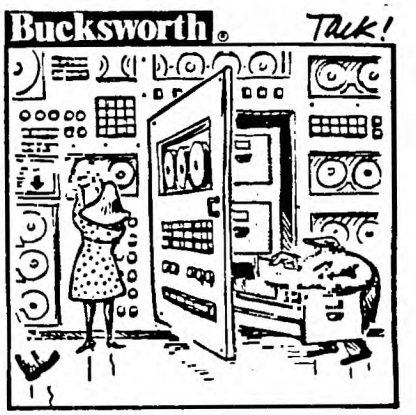


"OOPS - HERE'S THE PROBLEM. SOMETHING'S CAUSING SHORTS IN THE MAINFRAME."



"I made it almost human . . . Unfortunately."

Page Pro 99

The Page-Making Software for your TI-99/4A or Myarc Geneve 9640

■ Page Pro 99 is a remarkable program that does one thing and one thing very well - it lets you compose a 66 line page full of text, graphics and lines quickly and easily. There are no formatters, no cryptic commands or functions - just a "what-you-is-what-you-get" screen, and the ability to paste in pictures and type text.

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■ Page Pro 99 also comes with a collection of artwork and fonts, as well as utilities to convert TI-Artist fonts and instances into Page Pro 99 format, as well as make 2 column justified text for use in Page Pro 99 from your TI-Writer files.

■ We don't call Page Pro 99 a "desktop publishing program", but it lets you do more, more easily then many programs that claim to be. Page Pro 99 is so capable we did the manual entirely with the program with just TI-Writer and standard TI-Artist fonts and instances.

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