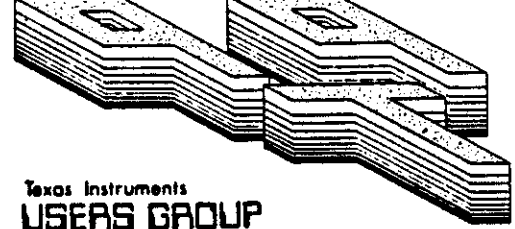
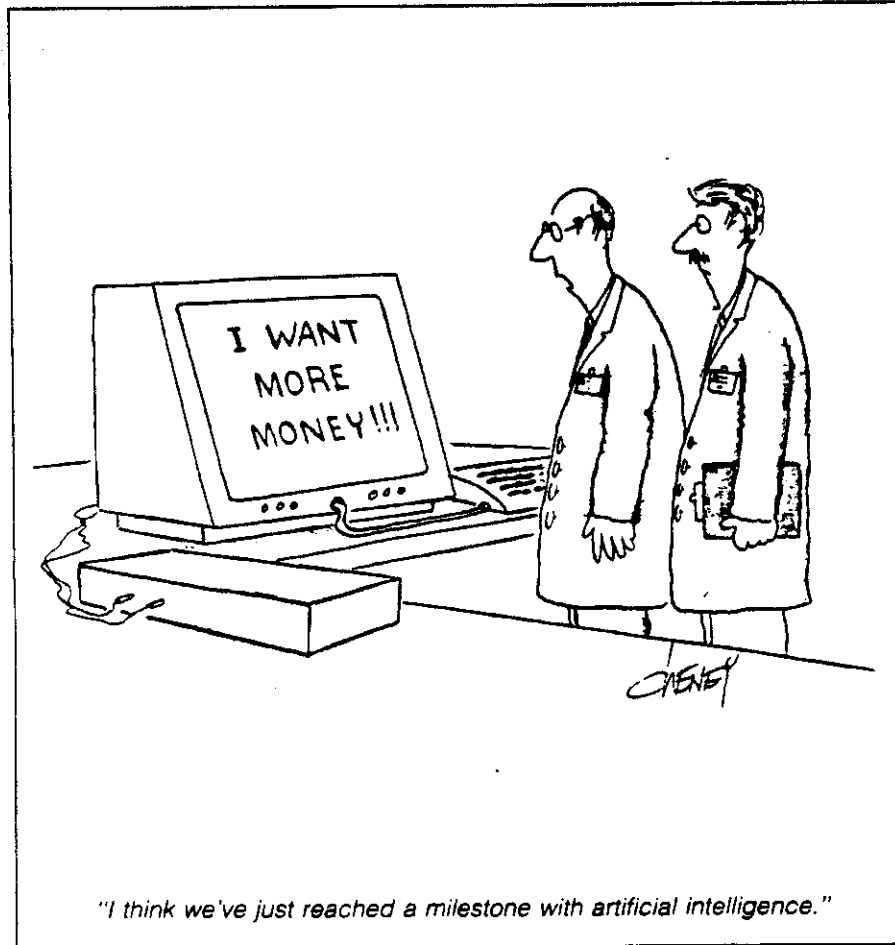


Newsletter Nine-T-Nine



August/September 1990
Double Issue

Texas Instruments
USERS GROUP
TORONTO



From:
9T9 Users Group
109-2356 Gerrard St.E.
Toronto, Ont., M4E-2E2
CANADA

To:

9T9

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All memberships are household memberships. A newsletter subscription is only for those who do not wish to attend meeting, 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.

BBS

The 9T9 Users Group supports the Toronto BBS, The TI Tower BBS # (416) 921-2731, 300/1200/2400 BPS, 24 hrs. Sysop, Gary Bowser.

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

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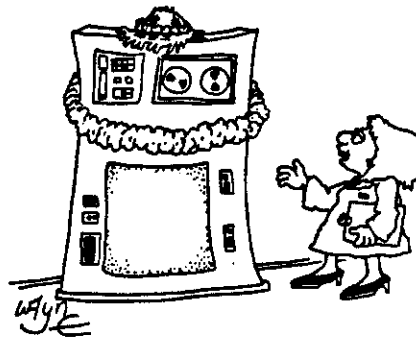
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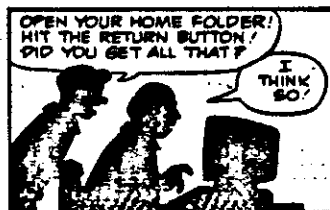
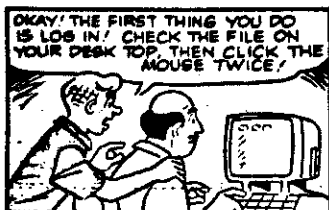
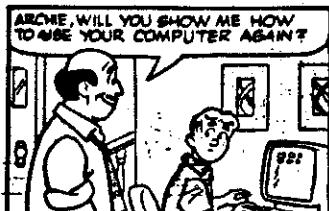
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Glad to see you back. How was your vacation?

ARCHIE





Orphaned Again! New 9T9 Meeting Place

It was just two years ago, September 24, 1988, that Canada Remote Systems, (also known as CRS), opened its doors and allowed the 9T9 Users Group a free place to meet. We used to meet in a small room, inside a some what run-down office building located on Dundas St., just east of Royal York Rd. The meeting place, though small, was made available to us by Canada Remote Systems without charge or obligation.

When time came for CRS to move to larger facilities in Mississauga, the invitation to the 9T9 Users Group for free use of its larger meeting room.

However, the rapid expansion of CRS and its additional dealings as a marketer of computer hardware, in a relatively soft market, caused a financial short-fall, and eventual bankruptcy. Having been orphaned, the unfortunate membership, numbering more than 8,000, (myself included), are classified as unsecured creditors and therefore not able to lay claim to any funds from the remaining assets of CRS. I think CRS orphans will not fare as well as the TI orphans have.

Thanks to an urgent message re: the closing of CRS, from Gary Bowser last August, while the club was in its summer hiatus, I was able to scout out a new, but familiar meeting place. The Gregory library, though still not available weeknights, has its auditorium facilities open for Saturday's. This is the same library that our group used just prior to our move to CRS.

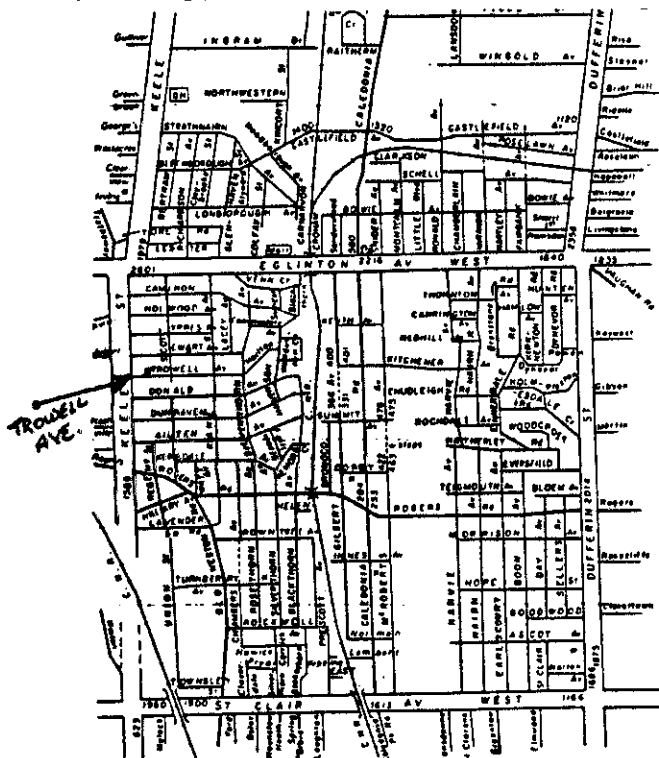
We will try to keep the meeting date as close to the last Saturday of the month as possible, for as long as we are there. There were a few requests from the library administrator, put forth as conditions of use of the auditorium. That there be no parking on the walkway in front of the building, (to prevent damage to the paving blocks); the side-entrance to the library proper must be kept closed, (to maintain security within the library); and that those who use the library be responsible for their children, (as there is no day-care or baby-sitting provided).

The club has booked the auditorium for Saturday, September 29, from 9:30 AM until 12:30 PM. The Gregory Library is located at 120 Trowell Ave., 1/2 block east of Keele St., and 5 blocks south of Eglinton Ave. (See map).

(C/R to exit) >TI UG Chatter

Maximum of 30 lines.
Enter blank line to end.
Type away! Word Wrap now active!

This message was posted a couple of weeks ago, and is re-posted due to a crash or loss of messages on the BBS: The Next meeting of the 9T9 Users Group will take place at the Gregory Library, at 120 Trowell Ave., 5 blocks South of Eglinton, 1/2 block East of Keele, in the library's auditorium. The date booked is Saturday Sept. 29, from 9:30 until 12:00 noon. The change was made necessary since CRS, our former meeting place location, is no more -as it went out of business. Please check your next issue of Newsletter 9T9, for more details.





Tidbits #41

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

Get Well Neil:

Just before press time, I received word that 9T9 Vice President Neil Allen was admitted to the hospital. We wish Neil a speedy recovery.

Meeting Place Changes:

As you can tell from the announcement on page two, CRS and the meeting place provided for our club are no more. September's meeting will be at the Gregory library. If you know of a corporation or institution which will provide facilities free to non-profit organization, (that's us), for one weeknight per month, please contact any member of the 9T9 executive.

Talk To Us:

Wearing two hats of Newsletter Editor and Club President, makes it very difficult to provide both a good publication and to schedule an acceptable meeting format.

Thanks to input from various readers, I feel that I have been able to improve the form and content of the newsletter. I would like to request the same input from our readership regarding what you would like to see at our live meetings. Usually our meetings consist of news, discussion of hardware/software problems/fixes, and featured disk of the month. Previously, we have had software/hardware tutorials and demonstrations, guest speakers, swap meets, among other things.

I would like to request that each member take the time to write on a piece of paper what you would like to see provided by our club, at the meetings. Readers who may not be able to attend our meetings can participate as well. If you were able to attend a meeting, what would you like to see at a TI Users Group meeting.

Perhaps you dislike the meeting place or times, perhaps you don't like the format. Let us know. If you give us negative feed-back, try to suggest a way we can correct or remedy it.

If we have at our meetings you like and want more of, let us know. Likewise, if you dislike something we are doing, tell us. Be frank. Our membership is not as large as what it was in the early '80's, so your vote has more weight to it. If we get only one reply, then that individual would have the lion's share of influencing the club's executive. You don't have to put your name on the paper if you so desire. Send this feed-back form in when you renew at year's end, or at a future meeting, or mail it in whenever you like. After all how good our meetings are, depends upon how well informed we are by YOU, after all YOU are the reason we exist.

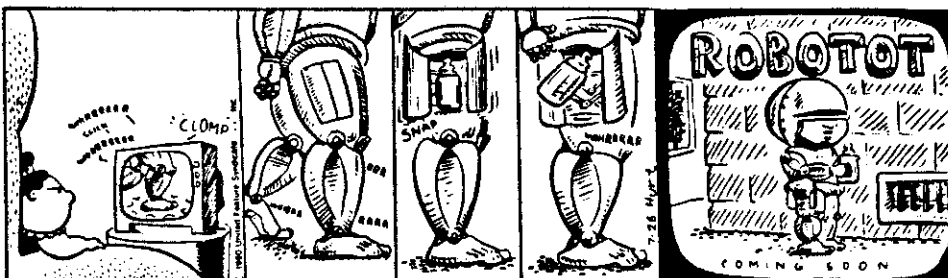
We Buy and Sell Used Equipment

Looking to sell your old TI-99/4a equipment? Need some extra cash? Interested in picking up a second system for the kids, the office, or as a backup for your existing equipment?

If you answered yes to any of these questions, you need to contact Texaments! We buy, sell, and even trade used TI-99/4a hardware, command modules, and accessories. We buy working and nonworking equipment. And we guarantee that anything you buy from us is in perfect working order... or your money back! (unless noted otherwise) No gimmicks, no surprises!

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QUEEN OF THE UNIVERSE



OPA Log

Log from the Delphi Conference of Sunday, July 15, 1990. Guest Speaker Mr. Gary Bowser, owner of OPA, a company which specializes in 9900 based software and hardware discusses current and future TI products, moderator Steve Mickelson.

This file has been edited by Steve Mickelson for continuity and clarity.

JWHWHITE> Is our moderator here?

SMICKELSON> yes just initiating our log. I would like to introduce fellow Delphi members to Gary Bowser, owner of OPA, without further ado I'll ask Gary to tell us a bit about himself and his company and then he can field questions, ok Gary ga

Gary/OPA> Ok I am ready, here goes with a little upload. Hi, my name is Gary Bowser and I am the main design engineer, programmer and owner of OPA (Oasis Pensive Abcutors). OPA is a small company based in Toronto, Ontario, specializing in 9900/99000 based software and hardware. Over the years we have designed many new things for the TI world, some of which have become very popular over a short period of time. Our main software line is the PHOENIX 2001 series which includes; TASS, DISKODEX, and the most recent addition RECALLIT.

Our hardware has been slow coming, but now includes; RAM80, GIZMO, and the most recent addition as of about two days ago TIM. I think the best package so far to date from OPA has been ROS_8.14 for the Horizon ramdisk.

I welcome all your questions, and I hope tonight we can answer all of your questions and maybe even solve a problem you might be having with one of our packages.

Hmm? Did it work? Or was it too fast?

JERRYC> fine

Gary/OPA> Ok. That's done, what's next?

SMICKELSON> lets have a question or two what is new from opa? ga

Gary/OPA> Well hot off the press (sort-of) is our new piece of hardware called TIM (TI-IMAGE-MAKER) I just finished the CAD layout this afternoon. Nice little board about 4" by 3" for the TI99 system only. So know I bet you all want to know what it does right?

SMICKELSON> yep

Gary/OPA> Well. TIM is the first 9958 upgrade for the TI99 computer. Also the best and cheapest 80col type upgrade!

SMICKELSON> will this be a kit, like rambo?ga

Gary/OPA> It is designed to plug inside your TI99 console, just remove the old 9918 chip and plug this 4 * 3 board in. Flits like a glove. Only one wire to solder on the motherboard, and a small hole to cut f or the ext. port.

SMICKELSON> what kind of monitors will it drive?

Gary/OPA> It will drive the same type as the 9938 cards currently do.

SMICKELSON> how about software compatibility? ga

Gary/OPA> There will be no problems with old software using the 9918,

but some new things could show up in badly written 9938 software. But the main VDP ports for access are the same as the 9938 cards currently use.

SMICKELSON> well I think I should invite question from others in this co please indicate your question by a ? and I will try to take the questions in order.ga

Jeff> ?

SMICKELSON> go jeff ga

Jeff> Does it have have a composite encoder? What is the ext. port--the color bus for special features? ga

Gary/OPA> It uses the a encoder for the composite. And the ext. port is for all signals like, Video,RGB,bus, about 25 micro pins, similar to the back of a AMIGA video port. I may dropped to use of the composite encoder, as so far I have not got a good enough picture.

Jeff> How much VRAM, and the bottom line--how much?

Gary/OPA> A full 192K of VRAM on-board. Price is \$150 U.S.

SMICKELSON> Will an adapter cable be available for standard monitor pin connections?

Gary/OPA> Yep, a adapter type cable will be supplied. To go from the 25pin plug to a 9 or 15 VGA type plug.

SMICKELSON> very good, any other questions?

Jeff> De-interlacing hardware planned? I'm done for now. ga

Gary/OPA> Future hardware is planned. But for now we will be mainly into the software side of using it. A full 100 page programming manual is included for those programmers- at-heart!

SMICKELSON> what about availability date? go ahead jeff

Gary/OPA> We just finished the final CAD layout today. We are looking at the end of the month for a delivery date.

SMICKELSON> ga jeff

Jeff> Will this card use a DSR like the Mechatronics and Dijit cards? i.e., add features to BASIC via CALLs?

Gary/OPA> Since this is an int. console upgrade, no DSR is included onboard.

Jeff> Thanks. ga

SMICKELSON> Gary how about more info re: rambo for the co attendee's ? ga

Gary/OPA> Well in sort, RAMBO is an upgrade for the Horizon ramdisk. It is designed to allow the use of the Horizon ram for both ramdisk space and program space, this program space is accessed in way like bank-switching hardware on other memory cards. But the new ROS_8.14 makes this bankswitching a lot easier to write for on the programmer side of things. So writing programs which use the extra space for data and program execution will be alot easier than for other memory expansion devices that were/are on the market.

So far three programs have been written for it, and many third-party

programmers are working on great new software for it. Some of it should be ready for the next TI show in Oct. or Nov. the end of the RAMBO speech. /ga

NPC> ?

SHICKELSON> I think npc had a question ga

NPC> WHAT WILL THE NEW SOFTWARE DO?

Gary/OPA> Hmm. Depends on the programmer what's it to do I guess. As for the RAMBO O.S. software it has been completed and no more updates are planned. ga

SHICKELSON> any more questions?ga

NPC> NO .GA

Jeff> ? [I have about ten more, if no one else wants to seem ignorant of OPA doings?]

SHICKELSON> ga jeff

Jeff> What about that GEM-like interface for the Geneve? ga

Gary/OPA> The project has been sort off put on-hold. But we hope to get some of the programmers back to work on it shortly. We have been trying to finished up the hardware projects during the slow summer months.

Also with many new things being bought into the 9640 world like Windows it may be hard to bring in a whole new type O.S. for the 9640

Jeff> Could you describe some the planned features?

Gary/OPA> The main feature was that it would very much be like GEM on the PC/AT/ARI world. Also there will be a improved GPL mode which would handle alot more TI99 programs than the current MDOS/GPL package, plus add alot of new features Also it is designed to fit all on-board in a 128K EPRON. We may demo it at the next chicago show.

Jeff> Would it remove the possibility of running MDOS?

Gary/OPA> It will have option to boot MDOS from memory,ramdisk,disk,harddrive. next ?

Jeff> I'm done for now. ga

HTB> ?

NPC> ?

SHICKELSON> Harry had a question ...then npc ga Harry

HTB> There have been quite a few problems running Spellit with the rams and it would seem that many people are putting the blame on ROS 8.+... any comment?

Gary/OPA> We have been looking into the problem. As far as we can see it was a problem with Spell-it itself. ASGARD has mailed out a temp fix for it. Which writes the corrected file to a new file instead of sector-changing the old file with the new spellings which was the problem with ROS8. We think it was something to do with a non-normal DSRLNK. And the new ROSB is more to the DSR rules than the most other devices and older DSRs. next ?

SHICKELSON> next question was from npc,ga...

NPC> MY QUEATION WAS ANSWERED THANKS..GA

SHICKELSON> ok next?ga

HTB> The temp still isn't right... I think this ROS busines is getting out of hand. The more we load up the system with CRU addresses, the worse it gets!

Gary/OPA> It could be. But sort far only Spell-it has had the problem. I planned to study the coding with Jim Relas later this year and see what could be the major problem. next ?

SHICKELSON> ok gary what is gizmo? ga

Jeff> [another gremlin to put in the TI is my guess <grin>] .Gary/OPA> Oh. That's our Review Module Library Module Expander Box. for the TI9 9 The long thing with 8 slots for 8 modules.

SHICKELSON> ok, next ?

Jeff> ?

SHICKELSON> ga Jeff

Jeff> Is a full-fledged OS planned for the RAMBO Horizons?

Gary/OPA> What would you like to see added? As by full-fledged do you mean a type of disk manager built-in,etc.?

Jeff> I mean something that will take care of TIM and peripheral devices. Perhaps a few compilers written to use the extra RAM...

Gary/OPA> Ah. Hmm, we could design a micro-GEM for the RAMBO/Horizons or even a full-GEM if TIM and RAMBO are used together. ---- As for compilers we are working on a Extended Basic type one. And we have been trying to get authors of current TI99 compilers on the market to write ones for use with RAMBO. next ?

SHICKELSON> Would the TIM require a mouse? I mean GEM ga

Gary/OPA> As it uses a 9958, a mouse will not work. But GEM does need a mouse but we also plan support for all the different mouses out-there, plus if needed joystick or keyboard control. But the mouse is the easy to use. next ?

SHICKELSON> Tell us about recallit?

Gary/OPA> RECALLIT is the first major program from OPA for RAMBO. Currently it is a name/address type database, but plans on the way for a full-fledged type database it so far I think is the fastest database on the market. And with the use of the RAMBO memory can stored up to 4000 records in about 512K. And it never takes more than a second to sort. A demo version of it is included with the purchase of RAMBO.

RONWALTERS> How about some background on the RAMBO origin (publicly)?

SHICKELSON> How about a thumbnail sketch, as it were?

Gary/OPA> Origins of RAMBO..... That could be a long story. But many people were involved in the design of RAMBO, we even have one right here. Ron Walters. Who is also credited in the back of the ROS 8 and RAMBO user manuals.

The main part of RAMBO is in the new software ROS 8. The hardware had been in different forms earlier on for many months before we decided to

take it a step father, after talking it over with Bud Mills, during show back in early '89.

The first demo of oh, I got lost here. The other phone is ring(ing).

SMICKELSON> [Tell them to hang up and log on to delphi <grin>]

Ok. The first demo of RAMBO was at the Wash D.C. '89 show with a patched 7.3 ROS. Then the next major demo was in Chicago, with the earlier ROS 8.00, and finally the big release in Ottawa of the completed package of 8.14ROS and RAMBO and RECALLIT.

More history anyone? But it could not have been done without the help of mainly Bud Mills, Ron Walters, and the many beta testers and buyers of the first demo package in Wash. I think that is enough history for now. I could write a book!

SMICKELSON> I take it recallit then is software for rambo? ga

Gary/OPA> Yep. It only works with RAMBO. Without RAMBO the user is greeted with a nice flashing ERROR message!

SMICKELSON> any more questions from the floor...

SMICKELSON> if not I'll ask one about the z-80 simulator, I was told by parties on another database that it couldn't be done even though you gave us a demo at a 919 Users Meeting on a 9640, ga could you give us a brief description, ga

Gary/OPA> Yep. A lot of people believe it CAN'T be done, but it can, at least simulating Z80 code which uses the same video/sound chips as the 4A does. This cuts way down the amount of overhead needed to emulate the program using a 9900 based system.

Running on the GENEVE we were able to get up to 80% speed compar to a 3.58Mhz Z80 system that z80 being an adam.

Not bad since the GENEVE is really only running at 33Mhz. 3Mhz! I should say. Anyhow, with the addition of the MEMEX 0 wait state mode (Another project from Ron Walters/Bud Mills)!

We think we may try to bring back the team that was working on it, and finish the disk read/write emulator. And hopefully be able to maintain the 80% speed or better. --- I looked into designing z 280 co-processor type card to help the emulator a while back. But it ended up a little to costly. We may try that route again as now with the new CAD software/hardware we have bought since then, we can turn out boards in less than a week. TIM was a test of the new system, from a dream to a real product it took only three days! The design was draw on paper then convert to the computer. Then we sat back and watch the computer draw the PCB in four hours. over 300 holes, 500 wires in a small 4*3 board. I think I have got off topic here, from the original question!

RONWALTERS> [actually bus speed/clock speed etc is ALL apples and oranges] Schema PCB by any chance? I recommended SCHEMA to Bud... an EXCELENT package!

Gary/OPA> Yep it is a nice package. But with all CAD software it is mainly the trained operator that can really use it the best and faster way.

SMICKELSON> Is this then like a software-based CPM-like system? So gary you think that the z80 package may be taken off hold?

Gary/OPA> I think bringing the Z80 package back to life would be a

wise-move. At the moment we still are short of programmers. Plus we need more banking in the form of dough (money) (Life's main problem!)

JerryC> ?

SMICKELSON> ga jerry

JerryC> How about a serial card in the console - both for CPM and 80-col mouse?

Gary/OPA> Yep. good-ideas, but I think it would be getting tight. The main design factor for TIM was to be easy to install, with no more than two wires to solder. For more things like on-board DSP, serial ports, etc. it would need more address/data lines,etc. With TIM just remove the old 9918 plug the 4*3 board in place in the old socket, solder down one wire to A13 on the motherboard, and cut a small hole for the Z8pin micro plug. ga

SMICKELSON> Gary if someone were wanting more info how about a mailing address / phone #? ga

Gary/OPA> For more info, you can phone me during the hours of 8am thru 11pm EST at 416-960-0925 or 416-960-1424 or write to: 432 Jarvis St. #502 Toronto,Ont. M4Y-2H3, Canada

JerryC> Maybe tap into the cart port right-angle adapter? or a collar for the buss?

Gary/OPA> That could be done. But we even have a better idea for more expansion on the TI console,etc. For now. TIM, Later TI2!

JerryC> That's it - out of ideas.. ga

Jeff> Maybe you could recap what the Z80 is for? Adam or CP/M software?

Gary/OPA> We never thought of much a use for a Z80 emulator in the TI world. Ma inly if we get a disk i/o emulator up and running, we could run CP/M from disk. At the moment, the emulator runs stand-alone programs/modules, which only access the key board / joystick / video / sound / memory. Most of the test programs were Z80 games from ADAM/COLECO system, plus a couple Sega ones, but we had the most luck with COLECOVISION cartridges, since they were small (32 K) and we could fit the emulator,software,D.S.,colecovision OS,cartridge all within the GENEVE 512K and the main code in the 0 wait state 32k area But with the MEMEX code with all 0 wait state, that could all change shortly.

Jeff> Adam is less supported than the 99/4A. Surely that is not the justification for such an emulator.

Gary/OPA> No ADAM was a test case to see if we could run Z80 programs which use d the same video and sound chips. Over five systems use the Z80 and 9918, and the TI sound chip in thier hardware. ADAM in some cases has more support than the 99/4A. Users groups are growing like crazy.

Jeff> Yes, several MSX systems use both. ga

Gary/OPA> Yes, mainly MSX system could even run Colecovision software.

Jeff> Adam computers are cheap. Price of this emulator?

Gary/OPA> If the emulator is all software, which is possible now with all 0 wait state GENEVE. The price could be as cheap as .29cent, but then, we would have to get something in return! I think we could price the package within the \$30-\$50 range. Since it will include a full Z80 assembler,etc. for writing your own packages.

Gary/OPA> What more can I say, except it does not work with any GRAM emulation device.

Gary/OPA> You must either turn them off, or unplugged them, before GIZMO will power up correctly. But there is a fix in the works for the P-GRAM hardware to work with GIZMO. At the rate it is going, TIM is going to on the market before GIZMO.

Jeff> Okay, can all the functions of the various XB's be used simultaneously? And is there any contention? I thought I heard about a multi-bank P-GRAM, and just wondered how GIZMO would do with it.

Gary/OPA> Well, in XB you can access things like Minimem, and TEII speech, but different XB's together don't work, since XB scans the int. calls different, and does not reach outside it's outspace ,reason why you can't access some DSR calls in a running X/8 program. But this could be fixed, with a simple three line CALL LINK loaded into the low memory area, via the XB program.

Jeff> Okay.

SMICKELSON> then you could have TEII "sing" along with MUSICMAKER's tunes for example, for hybrid modules, using two or more simultaneously?ga

Gary/OPA> Yep. You can fully access the TEII speech in XB, plus also use the extra 4K ram in Minimem, of course you need all three modules plugged into one of the 8 slots in GIZMO. One thing P-GRAM can't do.

Jeff> [Eight GRAMtrackers might be nice. <grin>] Did I miss the price?

Gary/OPA> Nope, you did not miss the price. No price on GIZMO, as it has been plagued for so many problems, we expect more to arise shortly!

The main problems are the physical nature of the modules to raise up out of the connectors, and start to play with the data lines. I had even hard drives wipe out, just because one of the modules was loose a bit. Even if the system power-ups it is no sign, all is safe, since one of modules may not have been fully accessed on power-up. It is like having a full-size 8 slot PE-BOX with no case or cover or guides. You never know when it is going to lockup! So at the moment, until we can design a cheap enough but solid enough case for the unit, we will hold off from taking orders, or setting a price. --- this project has been the the final form as it is now, for almost a year now.

SMICKELSON> what about using ribbon cables to each module instead of the expanded widget design? too expensive?(or am I answering my own questions?)

Jeff> I take it GIZMO looks like a long Widget on a cable?

Gary/OPA> (How's that for the truth behind one of our projects!)

Jeff> Couldn't you put spring-loaded clamps to hold the cartridges in place?

Gary/OPA> It looks very much like a long Widget on a cable. The cable is about two feet long, and was our first problem. But JM solve that for us, at a cost of \$7 a foot! Yes, some type of spring-loaded case or clamp could be designed. But to tell you the truth, we may be the best hardware (elec.-wise) and software designers out-there, we don't have any skill at cards out of the module cases and inserting all in case design, or making a thing look better to the eye!

SMICKELSON> how about the the idea ata zero of (a) taking the cards

JerryC> ?

SMICKELSON> ga Jerry

JerryC> How about an "AMPROM" emulator = Z80 + serial + disk I/O?

Gary/OPA> That would be one route to go. The reason we never finished the outside devices drives like disk I/O,etc.

JerryC> (that should run any CPM application)

Gary/OPA> Was without enough speed, we found the system to slow at times. It sometimes would slow down to 10% when testing the disk i/o. But without outside devices just key/joy/video/sound/memory, we got a good 70%-80 % out of most programs based on a 3.5Mhz z80 system.

Jeff> Or, would it be reason for Adam users to go Geneve/Adam emulation? <grin>

SMICKELSON> back to the comment (jokeingly) about a ti adapter for the adam, I believe that because the adam software was so scarce that many users converted ti assembly to adam with minor changes which was the original inspiration was it not? or should I say gpl?

Gary/OPA> Yes. we heard Adam users were taking some of the printed 9900 code in newsletters,etc. and converting it to running it on the Adam.

Jeff> ?

SMICKELSON> ga Jeff

Jeff> I suppose TIM could be plugged into almost any 9918A computer --such as 99 /8, Adam, etc.? Given room, of course.

Gary/OPA> Yes, TIM will work on any 9918A or 9928 system. We have designed this board to work on both the Adam and the TI. We originally planned to build one just for the Adam back in Nov. But after much planning, we decided it would be easier to interface a 9938/9958 card in the Adam thru the old 9928 socket they used. So after layouting out the first board, we noticed with on ly one extra clock signal it could work on the TI too. The extra signal is the 447Khz supplied to the GRAMS

Jeff> Doe TIM have gen-locking circuitry?

.Gary/OPA> via the 9918 GROWCLK, which the Adam's 9928 does not use. The big problem was the 9938/9958 chips don't have that signal just the 3.5Mhz output. But the good old design engineers quickly solved that problem. ---- The TIM will not have on-board gen-locking, but since all the needed signals are bought out thru the 25pin micro plug, future devices will plug thru it, and your monitor will then plug into the future device,etc. ga

SMICKELSON> future devices being a possible gen-locking device? ga

Gary/OPA> Yes, future devices include a gen-lock device.

SMICKELSON> ok any more questions?

Jeff> About GIZMO....

Gary/OPA> GIZMO the great 8 slot Review Module Library Expander Box.

Jeff> Does it work well with GRAM emulation devices?

removed from the modules into the unit or just having sockets so one could just plug the GROM's (purchased from TI) in, (b)?

Gary/OPA> We do have plans on paper, of a type of GROM card with sockets for the PE-BOX, where up to 32 modules could be plugged in. And now that we have tested our latest CAD software, and seen how fast it can auto-route a whole board 100%, we makemay make lot a test board. The board would use a type of micro-module, which only we could make.

SMICKELSON> actual modules or GROMs ga?

Gary/OPA> You would mail use the modules you want, and we would ship the card back fully loaded. --- (May not be a good idea to some .)

SMICKELSON> can you tell us something about your work with mem. expansion for the ti speech synthesizer? ga

Gary/OPA> Oh. I forgot all about the speech dept. But all I can say really is that we have found all of TI mistakes they made, and have been able to finally use the speech synthesizer to it's full use. The software is still in the works, but all really it overs about 10 90K disks, of new words, phrases, lang s. etc. All is left to finish is the new text-to-speech prog. and the graphic waveform editor part. We hope to be ready for a big dmeo oemo of what the TI should really sound like, just before the next Chicago show.

SMICKELSON> continue gary about the speech expansion unit.ga

Gary/OPA> Oh! I got not much to say more about the speech side of our work.

SMICKELSON> What it does or can do that we don't already have. Did you not say that ti references to the speech synthesizer were based on generic use of the speech chip and that programming for the chip is much simpler than ti makes out in their own literature for the 99/4a? ga

Gary/OPA> Only way to really understand what we have done is see the live demo sometime in the near future. I think this project will be the next big topic for months to come, once our demo has been done. But then, TIM may be more of the hot-seller. Our speech work is taking us in a new direction both for us, and for the users that buy the package. It is very much like RAMBO in the sense, the first release of the main O.S. and demo will not look like much, and we will have to wait and see what people will do with the new full ease and power of speech.

But how about a question for people here from OPA? We want to ge TIM out in the market by the end of the month, mainly because we have promise the ADAM world, for AIM for almost a year now. And second because we think the time is ripe for a new video card in the TI world, before too many people buy the other 9938 cards avail. But here is the question, over the last month and so, we have bern tr ying to buy even just one 9938 or 9958 chip, but it seems from the Canada end of the world they don't even exist out there. No one knows it out there, and no one wants to sell us any, even if they had them. So the question is, is there a way we can get some of these chips in mass lots, without ripping apart the Sega systems, which we have been doing? Does anyone here have any ideas or leads?

Jeff> I can get them. I have directly ordered a 9938 from Yamaha. If you want to work something out, I could possibly be a go-between. The UPS main sorting hub is here in Louisville, so the delay could be minimized. They wanted to sell me some 9958's as well.

Gary/OPA> Which Yamaha office was it?

Jeff> In California, I forget where.

Gary/OPA> Well, all I need is a phone number. And I can take it from there. --- I think maybe they don't like shipping/selling to Canada.

Jeff> Maybe I can get a TIM for the phone number? <grin>

SMICKELSON> (a TIM missing the 9958 <grin> let's see 411 for silicone valley, hmhm!)</p></div>

Gary/OPA> A TIM for a phone number? Hmm, it could be arranged. Do you remember how much you pay for the 9938?

Jeff> The 9938 was around \$32, and the 9958 was \$3 more. Price is driven down in larger supplies, I think.

Gary/OPA> Hmm. Yamaha LA is listed at 714-522-9011. Was, that the number?

Jeff> It is a toll-free number that I have--unlisted. As I frantically look for my contact--I'm staring at the number. <grin>

SMICKELSON> Some 800 numbers (actually most US 800's) don't work in Canada. Though I should say Disk Only Software's and Trident's numbers are good up here, (just to interject).

Gary/OPA> Price sounds good. I been quoted up to \$90 from Yamaha Canada, but then yamaha Canada does not even know what a IC looks like. I recently talked to someone there, and had to described it in detail like it has 64 pins, is covered in plastic, made out of silicon. Plugs inside a computer.

SMICKELSON> (had they ever heard of TI <chip off the old block <smile>

Jeff> Really, I meant "contact" as the person who knows what a 9938/58 is.

Gary/OPA> Well, Jeff if you found that number, etc. or want to arrange a trade-d eal, etc. give me a call anytime at 960-0925 (area code 416).

Jeff> Gary, the number is (800)543-7457. Don't let them steer you anywhere else. Keep badgering (like I did) until you get someone that knows what YOU are talking about. If everything works out fine, my address is: Jeff White, 4726 Cliff Ave, Louisville, KY 40215-2421, USA. If you can logon before 6a.m., I will try to leave a message with the name of the person I dealt with. Remember who told you the number!

Gary/OPA> If that phone number works. I will put your name in copper! But you may not be able to read it, since the board is only 4*3 and not much free space left. I guess I could fit it in using 8mil high letters!

Jeff> If that number does not work, I still have the address!

SMICKELSON> Any more questions ga

Gary/OPA> Maybe not. But I can say one thing about TI, alot of people think the y don't care anymore, or don't want to help, but they have been a great help in many of my projects. Just one reas on why they are given a credit in the back of the ROS 8.14 manuals, under CREDITS

SMICKELSON> Gary tell us about diskdex.

Gary/OPA> Diskdex? It is getting a little out-date, does not support RAMBO yet But hold.....

SMICKELSON> another phone call? ga

Gary/OPA> Nope. just writing down the above info/phone number. (My log buffer is broken!) But pencil and paper, works everytime!

SMICKELSON> better take two BUFFERIN <smile>. The pencil mightier than the log <groaning?>

Jeff> [Wonder if voodoo dolls work across borders?]

SMICKELSON> He caught a pretty good game in Anaheim jays still lost though <baseball batty> (comment -for the uninitiated Pat Borders catches for the Toronto Blue Jays -no fun if you have to explain the PUNCH line)

Gary/OPA> Oh! where was I. Oh! yes DISKODEX, one of our very first programs, and still up to stuff, even though it is a little out-of-date, in that it does not support RAMBO or hard drives yet. But it is still one of the best and faster disk cataloger out there. And the only one that fully supports auto-reading of Disk Utilities comments.

Gary/OPA> - signed off - (Due to modem problems)

SMICKELSON> Diskodex is a utility to manage the contents of one's floppy disk I may mention while Gary is logging back-on

Jeff> I certainly have more questions for him.

SMICKELSON> I don't believe he intended to disconnect as he was in mid-sentence I'd give him a couple of minutes to reconnect through Tymnet.

** Gary/OPA just joined "OPA" **

Gary/OPA> Boy!

SMICKELSON> Hi Gary!

Gary/OPA> I am back! What happened? I just lost carrier. And then I logged back on and I could not see what I was typing. Everything is back ok now. Almost anyhow.

SMICKELSON> You have a question or two from Jeff, ga

Jeff> Which Sega has the 9958 (9938?) in it?

Gary/OPA> The Sega Master has the 9938 with 16K/32K of ram The Sega Genius (sp?) the latest model uses the 9958 with about 64K of ram. The reason the Sega don't use all of the ram space, is some is reserved for exp. ROM inside the different Sega game modules. i.e. the modules have split imemory CPU and VDP.

Jeff> I thought so. Believe it or not, someone local wanted to use the 9958 to upgrade his Atari, and he owns the Sega Genesis--which he demped at the KY Computer Expo yesterday. I said that looks like an MSX video output to me.

Gary/OPA> The MEC Turbo Graph, is also uses it, but I have not been able to rip one apart to make sure it does.

SMICKELSON> I believe Myarc was interested at one time in OPA z-80 simulator in order to arrange with Mintento to get some new game software for the Geneve.

Jeff> Nintendo use a 6502 microprocessor--though I have never tore one open to check.

SMICKELSON> (This was Lous comment to me, though he may have been playing coy and really meant Sega)

Gary/OPA> As far as I know Nintendo does not use anything near a 9938, but I am not sure, since I have not spent enough time looking into side one.

SMICKELSON> Another question Jeff? ga

Jeff> The other question...oh yes, about the speech. Does you work require the user to change/upgrade hardware?

Gary/OPA> Nope. The only thing the user needs is at least a speech syn. (of course grin!) and X/B, but RAMBO is recommended for very long speech use, or faster use.

Jeff> I took one look at Genesis and said--the Geneve can do that. Populace wa s really nice.

Gary/OPA> Yes. The GENEVE and the 9938 chip are two of the most powerful things we have in the II world, what we need is more good programmers.

Jeff> Well, this person and I are just hacking some hardware (nothing commercial), and he researched Nintendo. It uses custom graphics chips.

Gary/OPA> One thing which will help expand the use of the video chips 9938 and 9958 will be the manual we include with TIM, over 100 pages of detailed use of the different modes, in easy to read lang. and with full 9900 examples. The problem with most programmers trying to program for the 9938, is the 9938 DATA MANUAL FROM YAMAHA, is not what I would say a good reference guide for programming.

SMICKELSON> There is available in Canada a Nintendo clone called the Microgenius (made in Taiwan which has an interface option for their version of the MSX computer, which may have been a second CPU like the Adam adapter for the Colecovision. ga

SMICKELSON> what about the 9958 manual? just as bad?ga

Jeff> [12 page addendum, Steve]

SMICKELSON> (and the manual's only 5 <grin>)

Jeff> (Steve, 9938 manual is over 150 pages long. But I give clearer information in my Text 2 example source code.)

SMICKELSON> (Jeff I know I have a copy, just making light humour)

Jeff> [Comment: This is THE unqualified best conference that I have participat ed!]

Jeff> Another question. What about the assembly language book you are writing?

Gary/OPA> Our master programming book, is going to take a lot more work. But I may turn it into a time of yearly newsletter or something, because by the time I finish a new section, something new has been added to the puzzle of new hardware or configures.

Well, it is after midnight, it is time to let the cat out of the bag. Is there anything you don't like about out OPA?

Jeff> I wish they would publish more news releases in MICROpendium. It is free , you know.

Gary/OPA> But the manual for TIM is one main section of the book.

Gary/OPA> - signed off - (More modem problems)

TIMEI> It did it again. Whatever it/is

Jeff> Jerry and Ron must be asleep. <grin>

SMICKELSON> (<sandbaggers with sand in the eye's<grin>?)

Gary/OPA> Hi?

Jeff> Hello, Gary.

Gary/OPA> Ok. As for the subject of MicroPendium. We would have more news releases in there if THEY would print them, but it seems for some reason we have never got off together on the right foot. I have found MICROpendium to be very biased in it's reports. And most of the stuff printed about OPA has been wrong in one way or the other. Also many reports printed for somehow seem to have remove all refs. to us or left us out completely. ---- Like their report on the new ROS 8.14, even though Bud released it at Tuscom, they left my name out 100%. Plus many printed reviews of different TI shows, MICROpendium has left what I demoed or released out of the report, even at shows which MICROpendium has attended themselves, and even sat in on one of my demos of something.

SMICKELSON> In fairness didn't you get coverage in the Chicago review, Gary?

Gary/OPA> The stuff MICRO does print about me, somehow ends up a little wrong or something. But that is my beef, and they are still one of the best sources of info for the TI/GENEVE world, and I hope we get better covered over the coming year.

SMICKELSON> Since micropendium is a member of Delphi, perhaps they can address your comments and correct any reporting errors?

Gary/OPA> They are welcome to read this log if it gets posted, and maybe they will answer my questions about their mag, etc.

JerryC> Steve, I think MicroPendium leaves it to the authors to get it right... [I say, "Mail it to them!"] and sometimes they don't. Good morning, Jerry. <grin>

SMICKELSON> [I read the publishers review of Chicago and Laura Burns in D.C. did not mention OPA, though. ga

Gary/OPA> Yep. Could also because I had bad luck with many of the authors that write for MICROpendium, and it could be those authors that are leaving me out of reports, reviews, and not really MICRO ... that left me out. --- But Wash, D.C. was somehow left out, which beat s me, because I even talked to Laura at the time there that, and it was also the first public showing of RAMBO.

Gary/OPA> But enough about my problems with the press. What else comes to mind about things which I have done/may do/will do. Maybe I can solve a problem you are having with one of our products. They our very few and far between but it does happen!

SMICKELSON> any more ?

JerryC> The DC reviews here ran to 6-7 pages -- no way she could cover it in a few paragraphs. If they have a problem with OPA, at least they could report it. I never WHITEwash (pun) anything I say or write. If

it makes you feel any better Gary - they haven't reviewed JumpBoot a fter 2+ years.

Gary/OPA> Yep. I know I not the only one left out of MICROpendium, may good TI programmers/devlopers seem to skip the pages.

Jeff> Gary, I am sorry to say that I have never received enough information on your products to even consider buying them. Info is why I subscribed to MICROpendium. If I had not visted Chicago last Nov, I would never have even known about OPA.

JerryC> It is kind of "scattershot" -- but still lots of useful stuff gets in.

Gary/OPA> I am planning to change that. I have been talking with MICRO with buying a full page ad for about five months. That should give me some good coverage. Yai Ron, you still awake over there?

Jeff> Ron is multitasking.

SMICKELSON> Gary I don't think you finished telling us about diskodex, as you were "unplugged" as it were, ga.

Gary/OPA> not really much to say about diskodex, it catlogs disks very fast, builds the best master catalog ever evens auto-reads-In Disk Utilities comments, to make it easier to search for that favorite file of yours.

SMICKELSON> and what about TASS?

Gary/OPA> TASS was our vert first all assembly program. Needs to be updated, but it still the only slide-show on the market which can display TI-ARTIST color pictures without clearing or wiping the screen in between pictures during a disk access.

Jeff> ?

SMICKELSON> ga Jeff

Jeff> You mentioned the 99000 in your opening text--any significance (e.g., products) to that?

Gary/OPA> Oh. We do have access to a supply of 99000 chips for use in a commercial (e.g. non-mailtry) product, and we have thought about designing something based on the 99000 for the 4A world. But at the cost of about \$250 a chip in 10K (10,000) lots, I don't th ink to many TI'ers will want to use the computer based on it.

Jeff> [I can get them cheaper in single quantity!]

Gary/OPA> But it could be used to remarket the 9900 the computer world.

Jeff> What is this--some sort of tariff on products shipped to Canada?

Gary/OPA> The chips I get, are double the cost via TI in Canada, plus also the full-range chip. e.g. -50C to +125C, and from +1V to +5 0V oper. and built-in floating point MICRO eprom.

Want to know anything more about the 99000 area of OPA. We have done some programming on them now, but no hardware design yet. All we need to go with the 99000 is a 99058!

Gary/OPA> Hmm. Maybe you could join our growing team of outside hardware designers, etc.

Jeff> Well, I was just wondering about it. There seems to be a lot of overlap in what you are doing and what I have been hacking at.

SMICKELSON> Sorry folks but I gotta be going, I leave you to an informal conference as I have to get to work. Thanks Gary, et al, Gary continue on and perhaps we'll have you in for another conference soon. This log will be fun to edit, like a double-issue newsletter. Good night all.

JerryC> Goodnight all - enjoyed it Gary!
Gary/OPA> - signed off -

The following member ID's dropped-in/participated in the Delphi OPA conference, at one time or another:

GROUP LIST: OPA:
AVAILABLE LIST: = in conf SMICKELSON, ROMWALTERS, RIFELTON, JEFF,
GARY/OPA, JERRIC, MPC, TIMET, JIMWHITE, CYNTHIA, HTB, DOUGHELPS,
WAYNESTITH, RICKOURHART

RAVE EXPANSION BOX HEADLINES TICOFF

By Chip Chapin

It's a TI... It's a GENEVE... It's a SUPERSOMETHIN' Inabox! And would you believe, it's a NEW box! O.K., so it's a new box. And it doesn't look at all like the old PEB. But what's inside it? I mean, there's this PC-type keyboard in front, and there's no 4A console hooked-up, so it must be a Geneve, right? But why is there a TI Extended Basic cartridge stuck in the side of the box? Just what is this thing?

What this thing is, is RAVE's new EXPANSION CHASSIS for the TI-99/4A and GENEVE computer systems. Physically, the box is a "small-footprint" chassis which contains all the computer's components and provides cable connections to your monitor and to a PC-style keyboard. Connections to all your peripherals is the same as now; the rear of the chassis provides access to the connections on the peripheral cards. I did not measure the box, but it is not as wide as the TI PEB - approximately one-third shorter, I would estimate. It seemed about the same height as the old PEB but there might be an inch difference there. The same estimate applies to the depth.

When used with the 4A, the motherboard is removed from the console (you leave it inside the metal sheath) and installed in the bottom of the box before installing the up-to-three floppy drives. The RAVE keyboard interface board is installed, one or two hard drives, and up to eight peripheral boards (the same ones that are used in the TI PEB) can be installed. So what you have is a modern, small footprint style computer with a modern keyboard and take note - a 200 watt power supply and so quiet I could hardly believe it was on. If it hadn't been for the Extended Basic cartridge in the right hand side, I would never have suspected that it was a 4A.

In its GENEVE incarnation (which wasn't shown), the Expansion Chassis (PEC instead of PEB?) will undoubtedly look just like the 4A version, although the cartridge port will probably be a dummy. The main difference in the two versions is that the 4A computer is on the floor of the box in its version, and the GENEVE card is in a slot. Just as it is now in the old box. Also in the 4A version will be the keyboard interface board which allows a PC-style keyboard to be attached to the back of the chassis. There are not really two versions of the Chassis. The same box will be used for both systems, you would simply install the appropriate hardware for your system.

The front panel has various switches and LEDs which are not all 100 percent appropriate to the TI/GENEVE operation. There is a Power switch, keylock, Reset switch, Turbo switch, and LEDs for Power, Hard Drive, and Turbo. Many of us are used to getting that feeling of assurance that all is well by watching the LEDs flicker as data comes from the floppy or hard drive or from memory to the

RS232 card. We may have to forego that luxury with this box, but we are gaining a much larger power supply (200 watts vs 135) and a quiet box - something I had given up on.

The estimated cost of the RAVE Expansion Chassis is \$300 for the TI-99/4A and \$250 for the Geneve. For more information, contact RAVE 99 Co., 112 Rembling Road, Vernon CT 06066. Their phone number is (203) 871-7824.

My personal impression of the Rave Chassis is easily summed up - I want one. I was at the fair all day and I took the time to check this out more than once. It ran all day as a 4A and seemed to have no problems. It was beautiful.

This item should give the 4A community a shot in the arm. This Expansion Chassis is a whole new ball of wax, especially for the 4A. About the only thing missing is a way to tell which computer is installed. Perhaps black and silver pinstripes for the 4A? But what can we put on for the Geneve?

I'm afraid I have to give short shrift to many of the other events and items at the TICOFF, but it was indeed an excellent fair.

- Al Beard was there, handing out free updates to 99 and 9640 FORTRAN to those who had purchased earlier versions. I haven't yet had a chance to work with it, but you can bet your boots it won't be long.

- Harrison Software was there with music to sooth the savage beasts among us.

- Lou Phillips was there, representing MYARC, of course. He also had a one hour session late in the afternoon, in which he mentioned that several new pieces of software will be coming out soon. He said that JP Software will be the marketing source for these. He did not hint what those items would be.

- Berry Miller of 9640 NEWS was there. He also had a seminar in the afternoon demonstrating his WINDOWS application for the GENEVE, and talked about some new games and other applications of MYARC Advanced Basic.

- Bud Mills was there, demoing a GENEVE with two megabytes of RAM! After I quit drooling, I noticed that my hand had developed a definite "get your wallet out" twitch, but about that time I noticed the RAVE Expansion Chassis, so I tried to play one twitch off against the other. It worked for a little while...

- A plethora of User Groups were there. I lost track, particularly when so many of them have "New Jersey" involved in the name). There had to have been at least twenty, and of course the high school itself had several tables set up.

I don't know how the TICOFF people rated their fair, but I felt that it was well worth the five-hour drive. It was an intensive affair, and people really were interested in the technical aspects of things. Not that the social aspects were ignored - a brief luncheon was held for attending User Group representatives which was very enjoyable. All in all, I rate it as a great success.

FROM N.E.T.I. (PENN. STATE U.)

9T9 LIBRARY TREASURES

BY
ANDY PARKINSON
LIBRARY DIRECTOR

NEW SOFTWARE
FOR JUNE 90



FILE MAINTENANCE (FORTH)
DATABASE PROGRAM SSSD \$2.00

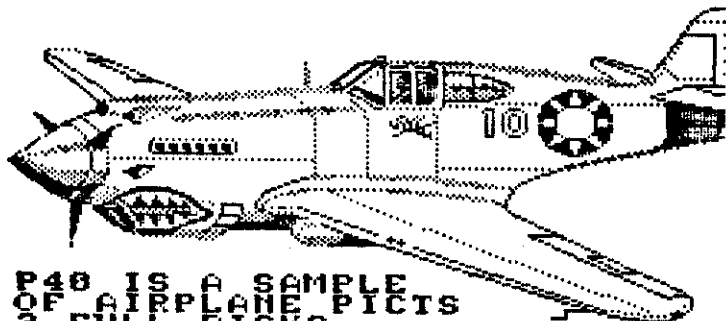
WILL OF THE WISP (XB/32K)
ADVENTURE GAME SSSD \$2.00

RECIPIES I & II (XB PRNTR)
GOOD SELECTION 2-SSSD \$4.00

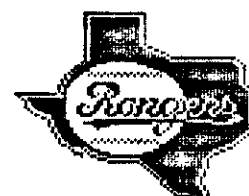
ARTIST PICTS 6-SSSD EA. \$2.00
(IF, IB, JF, JB, KF, & KB)

MULTIPLAN UPDATE vers. 4.0
REWRITE OF DISK FILES
BY ART GREEN TO SPEED
UP OPERATIONS TRIWARE
STANDARD VERS. \$2.00
GRAM DEVICE VERS. \$2.00

TELCO 2.3 TERMINAL EMUL.
TRIWARE 2-SSSD \$4.00



P48 IS A SAMPLE
OF AIRPLANE PICTS
9 FULL DISKS
ART2PICJF, JB, KF



ALL MAJOR LEAGUE LOGOS DISK KB



SMURF IS
ON DISK
ART2PICIB



DISKS OF THE MONTH

9T9-90/4 APRIL FEATURES:
BOOT LOADER, BOOT DISK
CHANGER, & TETRIS (GAME)

9T9-90/5 MAY FEATURES:
GIF DEMO, ALIENRAIN (GAME)
HIRE, HOPPER, WORD INVAS,
& LOADERS TO LOAD 6 PGMS,
& TI ARTIST PICTS TO XB

Library Disks Cost \$2.00 ea.
per SSSD. Disk of Month's
Cost \$3.00 each Order by
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Ad was done with Picasso

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99 * NEW-AGE/99 * N
EW-AGE/99 * NEW-AGE
/99 * NEW-AGE/99 *

* BY JACK SUGHRUE, Box 459, East Douglas, MA 01516 *

Many of my computer correspondents have a basic 4A system upgraded to include a tape recorder and that's where they want to (or have to) stay. Though I could hardly imagine life without multi-drives, RAMdisk, upgraded controllers, and all the rest, computer life in the slower lanes is not all that bad. After all, Harry Wilhelm (E-Z KEYS) and Eric Lafortune (ROCK RUNNER) produced two of the most powerful items in TI software using just the tape recorder. In the process they both discovered unknown (and thus untapped) potentials of our great machine. Most tape sources have dried up: IUG, Amnion Helpline, Tigercub, User groups, Triton, Asgard, Texcomp, and Kidware are about the only regular tape sources left. Some user groups (like Lima and MUNCH) still have extensive tape libraries for members. TI fairs everywhere still have piles of tapes available. At last year's New England Fayuh, for example, I purchased a dozen new (still in packages) tapes: BEGINNER'S BASIC TUTOR (from TI), far better to use with a novice or kids than TI's TEACH YOURSELF BASIC (which is too mathematical for most casual users).

BEST COMPUTER COACH: TEXAS INSTRUMENTS (from Boston Electronic Systems Training) extremely clever. It comes with two cassettes - one with programs and data and the other an audio tape to listen to and easily follow along while computing.

LEMONADE (from Kidware), though less graphic than Apple's version, is many times better. I use both in my classroom. Kids prefer Kidware with more options and more intelligent control. All Kidware tapes have Side Two. LEMONADE contains a super code-breaker game... Kidware stuff is always good TI stuff.

THE WIZARD'S DOMINION (from American Software Design and Distribution Co.) fantasy adventure with a superb manual (unusual for adventures) making it a joy to play.

COSMIC CAVER (from Computech Distributing Inc.) timed space arcade game with twists, including a possibly-bottomless pit.

COSMOPOLY (from Not-Polyoptics) has got to be the most bizarre form of Monopoly ever devised. The setting is the Universe of the future and the options in this fast-paced, ingenious game are wonderful.

HANG-GLIDER PILOT (from Maple Leaf Micro Ware) up to four players test "gliding/landing" skills.

STARSHIP CONCORD (from Futura) another spaceship game with a good manual and so-so graphics.

MISSILE WARS (from Asgard) by John Behnke is one of the best of this genre on tape.

AZTEC CHALLENGE (from Cosmi) well-done, multi-level ancient obstacle course game the's fun and quick.

CAVERN QUEST (from Moonbeam) about as "academy" as you'll get on tape and one of the best multi-level graphic obstacle games.

My final tape purchase that day, ROMED (from Extended), was lost or stolen after I gave a demo of it a few years ago. I'm not very good about making backups of my originals, unfortunately. By the time ROMED disappeared, it couldn't be purchased anymore. So my joy at seeing one

for sale at the fair was great. Cute Romeo has to get past a series of sand dunes via balloons, is unceremoniously dropped into a shark-ridden sea, swims into a dangerous cave, and so on in his quest for the fair Juliet. It's one of those delightfully addictive, nonviolent games. Now a new generation (my 5th-graders) are discovering the joys of noble quests.

These twelve tapes are things I didn't own but now use and enjoy. Original prices on these items were from \$49.95 to \$9.95. I picked up most for under \$2 (not counting the ones from Kidware and Asgard still being distributed today).

When I came across these tapes in class the other day, I realized how often the kids continue to use most of them, along with some other tapes that I have in large bookcase-style tape racks. Tapes get used a great deal: Jim Peterson's always exceptional educational tapes; Intellectar's (CELLS), early TI's (HAMMURABI, WORD SAFARI), and many others. I teach ASL (American Sign Language) in class, and the kids use the PD FINGERSPELL program to learn, review, write, and decode through the manual alphabet. This is in EVERY user-group library.

Last week we were studying the skeletal system. I put on Regena's "Name That Bone." I often use the tape recorder on the disk-system TI I have at school, also. Once a program is loaded into memory, I take the little tape recorder to the next machine and repeat the process. Sometimes I bring a third computer in from home, but I still just go from one to the other with the same tape recorder.

But that day I loaded up "Name That Bone" by tape into the two TIs, and all the kids during the day had a chance to successfully complete this great program.

There's no problem using tape. I load them into the computers before school, while I'm getting my other stuff ready for the day. I keep the volume on the TVs high so I can hear when one computer had loaded; then I repeat the process for the others. By the time the kids arrive, I've had my coffee, put up the computer schedule, and we're all rarin' to go. I still think the 4A is the best educational computer tool in existence.

I often think about users with the basic diskless systems. There are still tapes readily available for the Adventure, Tunnels of Doom, and LOGO modules (though the last requires 32K). Triton still has cassettes of all kinds for as low as \$1.99. I just bought a SMS book for \$2.49 (TI-99/4A GAMES) that included a cassette of all the games. I usually pay more for blank cassettes alone.

Peruse the mail order palaces to see the number of extremely low-priced MODULES still available. Triton's start at \$2.49 and go up to \$29.95 (for Extended BASIC). There are recreation (MOONSWEEPER, FATHOM, MUNCHMAN), productivity (PERSONAL REAL ESTATE, HOME FINANCIAL DECISIONS), education (READING FLIGHT, NUMERATION I), and other cartridges. TEXCOMP's module prices start at \$4.95 and have many more cartridges not listed by Triton, including the last of the AtariSoft ones like Donkey Kong.

So a person with a very basic 4A system (console, TV, Extended BASIC cartridge, and tape recorder) still has an extremely powerful tool at his or her command with options for many other diskless peripherals. I But most early owners have opted or tossed their TIs. Recently, I went to a flea market in a nearby town and picked up a used (but very new looking) silver and black console with cables for \$3! That's what I'm writing this article on right now. So DON'T QUIT! Your 4A is alive & well & kicking up its heels all over the world.

!!! YOU SEE. \$29.95/99 PLEASE PUT ME ON YOUR EXCHANGE LIST.!

1990



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If you have any questions, please contact Customer Service at (614) 457-8650 or submit your questions online through the Feedback Service (enter GO FEEDBACK at any ! prompt).

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Where have all the zealots gone?

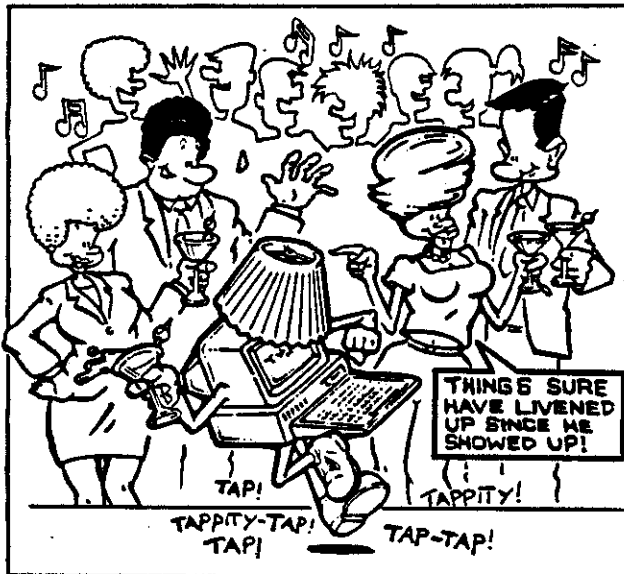
By TAMARA STARK

The user group. Hundreds of hackers, huddling together in basements and in schools, bantering and bartering and building new applications. Support systems slowly growing, so that any problem a hacker could crash into could be solved with the help of some other enthusiast. In the early '80s, we would have been lost without them, but what about now that the micro's a mainstream machine? Are they still serving a purpose, or have the true micro-maniacs gone the way of the dinosaur?

When the first personal computer stumbled onto the scene in 1975, it took a mere three months for the first users to cluster together. A multi-tentacled organism that later became known as the first users group was formed, and that group was the by now famous Homebrew Computer Club.

Three months after its inception, the Homebrew Computer Club grew from its original 32 members (Steve Wozniak included) to over 10 times that amount, and quickly turned into a renegade gathering of techies, most of whom were members of what some called the New Left. Spawned in part by the activities of the Valley-based People's Computer Company, the Homebrew crew worshipped at much the same altar as the PCC had: an altar in which the primary commandment was that the computer could, and should, be used to free the people; that technology could be seized and used as a liberating instrument, instead of a repressive instrument jealously guarded by a bureaucratic establishment.

It was at these meetings that they brainstormed, sharing both creativity and competence. Much of the latter, of course,



Computer user groups are more than just a meeting for minds.

belonged to various members' employers. Homebrew members had no qualms about sharing absolutely any and all information amongst the group, whether it was initially garnered from Hewlett-Packard, IBM, or Atari: the concept of intellectual property was not a popular one. It was partially as a result of these technical free-for-all that Steve Wozniak and frequent Homebrew visitor Steve Jobs gave birth to Apple Computer. Later, as Homebrew Computer

Club member Adam Osborne created another computer that for a time captured a fair share of the blossoming micro market: the Osborne. Certainly the birth of this particular computer club was responsible for a great deal of shared creativity and technological advancements, and its existence paved the way for local user groups to evolve.

...info for all

From 1980 onward, the micro industry flourished, and produced machine after machine—all possessing dramatically different operating systems. Each machine appealed to a specific group of enthusiasts, and the loyalty to whichever computer had won both heart and head was astounding: the user group trend caught on and blossomed.

At first, the reason for the groups' existence was overwhelmingly obvious: not much software existed, and what little did was awful. User groups became a hacker's haven and, in those days, "hacker" was a term of endearment: the hacker was revered and appreciated by all.

"Back then, members were mainly interested in programming, and in finding out what was available and who was doing what, and user groups were one of the only places you could go for information," says Brian Quan, a Club Mac spokesperson who, like many of the 400 current Club Mac

members, was an Apple II user in 1980. Now, he says, members' interests have changed from writing programs to getting the most out of what's available commercially.

"But even though now there are other places to get information, the user group still has an important role to play," Quan says. "The group serves as a voice directly back to the manufacturer, and sometimes serves as a kind of lobby group that keeps the manufacturers on their toes."

Club Mac is one of the few clubs around town with an ongoing, growing membership, but then, it's also one of the few clubs around whose computer is still being actively supported by the manufacturer.

The support is needed, in order to supply the kind of services most user groups offer their members, such as a comprehensive public domain and shareware library, special interest groups that hold their own, subsidiary meetings to focus in on a particular specialty, newsletters. Some clubs recruit knowledgeable members to monitor technical support lines, and others sponsor their own, brand-specific computer shows. All of these features demand money but, even more than that, a great deal of energy.

The club that, at one time, had more money and energy than any other around was the Toronto PET Users Group (TPUG), which had focused on Commodore's popular PET computer, and then expanded on its success with the phenomenal C64.

The rise and fall of...

In 1984, TPUG had reached the zenith of what computer clubs could attain: the club membership had hit 20,000, and TPUG was able to boast of a full-time staff—something no other club could possibly have afforded. The library was huge, and the club became known as the hub of information for C64 users internationally. It therefore literally rocked the user group community when rumours of TPUG's potential demise began circulating along the grapevine, and membership started to drop off.

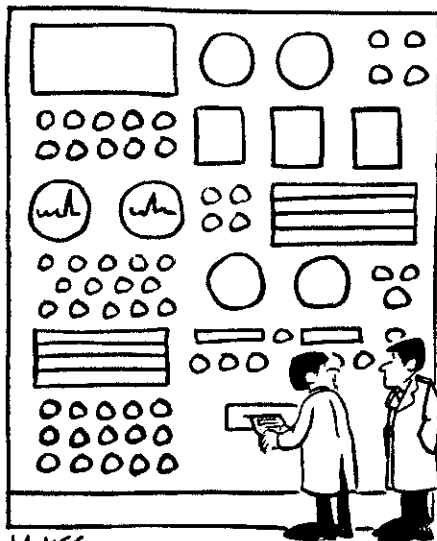
Most of it was due to administrative problems—severe ones—which began to plague the group in 1985/86, and then again in the 1988 season, says John Easton, club secretary, but TPUG has managed to do some house cleaning and, like other groups, now relies on a strong core of volunteers to keep the club running.

But Easton says the changing micro industry played its part in diminishing some of the enthusiasm surrounding the user group concept.

"We had a huge group of people who relied on TPUG to provide them with new software, and with technical info, and once

ZEALOTS Page 24

April 1990



JAMES
ESTES

"It says, 'That's for me to know and you to find out'."

9T9 - Page 16

SOFTWARE

"BOOT PROGRAM"

Copyrighted by the Miami Users Group Feb. 1989. Not available from any other source or Mail Order Co.

Latest up-to-date version by the original author, John Johnson.

"BOOT" is in assembly language and uses the Horizon RAM Disk "MENU" program, without a RAM Disk.

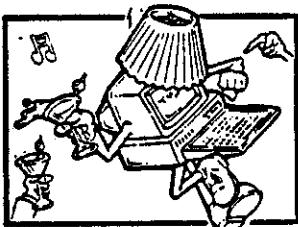
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Has PC passion waned? cont'd from Page 23



BBSes came along, that began to change," says Easton. "You could just log on, download, and that was it. Its ease, and speed, and low cost drastically reduced the need for the same kind of communication that we'd had before."

Oddly enough, says Easton, the C64 is experiencing a kind of rebirth, as schools and other institutions rid themselves of what they, in their upwardly mobile mentality, feel is archaic technology. New—as well as knowledgeable—users are more than willing to take the C64s off their hands, and at that point, often turn to TPUG to stock up on technical advice, and a proliferation of PD software.

But while the older machines can still pull a crowd, it's not surprising that the Personal Computer Club of Toronto (PCCT)—which supports IBM-compatible computers—probably has the largest group of supporters of any of the local clubs.

"It makes sense to me," says Grant Harper, one of PCCT's founding members. "The reason our membership has stayed high is that middle and lower management has to learn the machine now, because we were too stupid to learn it back when it first came into business. So while a lot of clubs are folding because of lack of interest, our attendance is still increasing."

Business, not barrier

The PCCT differs from most clubs in one other way which is unique: its lack of a zealous, enthusiastic social side. As Harper says, "I think the bulk of us just weren't looking for that; it's not what this club is about. Most of us joined in order to improve our knowledge, to become computer literate."

But at the non-defunct Epsontek, which advocated Epson's CP/M-based QX-10 as the premier personal computer, the social aspect often seemed to be as important a factor as the acquisition of knowledge, says Murray Soupcoff, ex-editor of Epsontek's magazine.

"It was incredibly warm and supportive," Soupcoff says, "and there was a very genuine enthusiasm and excitement about the meetings. We didn't see each other very much socially, but we went out after each meeting to the same doughnut place, and often I wouldn't get home until around 1:00 in the morning because we couldn't stop talking."

"I've never been a joiner at all, and that's what was so amazing," he adds. "The first time I went to a meeting, they asked if anyone had any problems, and the people who were regular members were so interested, and so non-judgmental, that it seemed like a miracle to me."

There also was more of an impetus to copy software, and the loosely defined young clubs did little to stop piracy, Soupcoff says. Since then, the groups have almost all formally banned the practice.

Two other factors which contribute to declining membership, says Soupcoff, are burn-out and the normalcy of having a computer in your office, in your home, and in your cottage.

"Often a few members end up doing all the work to keep a club going, and that can only last for a couple of years before you have no energy left. And once the computer became so mainstream, it seemed like there was less incentive to go to meetings: they were no longer cutting edge."

But in some cases, user groups flourished

precisely because the computer was no longer cutting edge: because it had, in fact, become an orphan. Such was the case with the Adam computer, according to Richard Clee, president of the Metro Toronto Adam Group (MTAG).

"Essentially, the group was created in direct response to Coleco dropping the Adam flat in 1985," says Clee. "It was a good computer, and those of us who cared about it weren't about to let it just die."

Little orphan Adam

What forced the user group to draw so tightly together, Clee says, was the absolute lack of support from Coleco, once the computer had been dropped from the line-up.

"They were downright spiteful about it," says Clee, displaying the fierce brand-loyalty that typified the early user group members. "They wouldn't release technical details, and they wilfully orphaned us: it forced our hackers to go inside the machine, and really learn its insards."

Orphaned computer groups are probably the only ones who still invoke the same

kind of zealotry as the early groups did, a zealotry that then, as now, hinted at some kind of religious conversion. The same reasons that initially spawned the user group still remain true for the orphans: little software except for what you create yourself, limited PR pushing new events, and a lack of community except for the one created in the user group itself.

"If the Adam hadn't been abandoned, I doubt the character of the club would ever have become so fanatical," Clee admits. "And the 'it's us agin the world' attitude goes a long way towards creating that kind of fanaticism."

"There needs to be that kind of camaraderie, though," says Steve Michelson, president of the 919 user group, which supports Texas Instruments' 919 computer. "It takes a lot of inventive behavior to keep an orphaned group going, and there's often a heavier demand on the club executive because of that."

Orphaned groups need that camaraderie for another reason, along with the software support, says Myles White, ex-member of the Epsontek group.

"The group is incredibly important to the orphaned computer user, and partially so that there's more than just your face looking at you in the mirror telling you you're doing the right thing, mucking with a machine that's been abandoned," White says. "But of course, for new users and for hobbyists, there's a very real need for the services the group provides."

But White claims that, generally, user groups are no longer as necessary as they once were. "Once we went because computers were mysterious, computers were slightly sexy," Now software is more user friendly, he says, and computer courses have come along to train the new user.

Despite that, he admits that he remains a member of what amounts to an informal user group: a number of the old Epsontek club members remain advisors and friends in much the same manner as when the group was going strong.

"In a user group you learn whose opinion to trust, and to know who to go to for specific problems," White says. "And that, probably, is something you'll never find at a computer course or in a manual."



SWAPSYS for the 9640



"I work three jobs to afford a hobby that I don't have time for."

SWAPSYS version 1.0

Batch utility for changing MDOS SYSTEM/SYS versions

(C) 1990 Bob Williams

SWAPSYS may be freely used, distributed, and modified on a non-commercial basis provided credit is given to the original author. Last modified: 03/03/90 23:35:00

SWAPSYS was written to automate and streamline the process of changing MDOS versions on the Myarc 9640 Geneve equipped with the Myarc MFDC. Because a complete and fully functional hard disk version of MDOS and associated system software does not exist as of this writing, it is often necessary to use different versions to perform different tasks or to use certain software.

While the system files can be renamed simply enough from the MDOS prompt, the opportunity for spelling, syntax, and other errors creates the possibility of overwriting or misnaming system versions, leading to unexpected results -including damage to data on floppy disks. Changing system versions manually without a set of bootable system floppies at hand is not recommended for the faint of heart!

SWAPSYS eliminates most of the errors that can occur when changing system versions and greatly reduces the number of keystrokes (and mental effort!) required.

SETUP:

As released, SWAPSYS is configured to swap between three versions of MDOS: v1.14, v0.96H, and v0.97H. SWAPSYS expects these files to be named "V114", "V96H", and "V97H", respectively, and to be located in the root directory of HDS1. At any given time, of course, one of these files should have been renamed to "SYSTEM/SYS".

SWAPSYS can be put in any directory in your PATH and only operates on files in the root directory of HDS1., so you can use it from anywhere in your directory tree, or from another device. SWAPSYS assumes the drive assignment D=HDS1:. If you have assigned a different logical device for your #1 hard drive, you will need to replace all references to "D" as a device in the SWAPSYS file with the appropriate drive letter, and change the ASSIGN commands and error messages accordingly.

USING SWAPSYS:

At the MDOS prompt, simply enter "SWAPSYS (version)", where "version" is one of the version names listed above. "SWAPSYS", without a version name, displays the usage syntax.

If SWAPSYS determines that all the files are in order, the specified version is selected and displayed. The current SYSTEM/SYS is first renamed as the version name in the set above which was not present on execution of SWAPSYS and then the selected version is renamed SYSTEM/SYS.

NOTE: SWAPSYS only selects the version to be loaded at the next reboot. The current version remains in use until the system is reset by pressing Ctrl-shift-shift (on Geneves with EPROM version 0.98) or by shutting off and powering the system back up. Automatically booting the selected version appears to be beyond the capabilities of batch commands alone. SWAPSYS will display a reminder to this effect and also tell you which version is currently in use.

You can change your mind and use SWAPSYS again to select another version at any time prior to rebooting.

ERROR CHECKING:

SWAPSYS performs as much error checking as is possible strictly using MDOS commands:

- o The version name is checked. Misspelled or incorrect version names are rejected and usage syntax displayed.
- o The versions fileset in HDS1.\ is checked. SYSTEM/SYS and 2 (and only 2) of the files listed above must exist before any files are renamed.

 ! WARNING: SWAPSYS only checks the filenames and does not look at the contents of the files to determine if they are genuine system files or if the versions match their respective filenames.

- o SWAPSYS will abort gracefully if operated under MDOS v1.14, which cannot rename hard disk files. Use MDMV to change versions manually in this case.
- o SWAPSYS checks whether the specified version has already been selected and will not try to reselect it.

SWAPSYS does not attempt to maintain separate AUTOEXEC files for each version. As a rule, I have found it simpler to maintain only one AUTOEXEC on the hard disk and deal with any version idiosyncrasies within it. This requires

a little more effort up front, but pays off by eliminating the problem of mismatched system versions and AUTOEXECS and reduces the number of backups and updates whenever I make a general change that applies to all versions.
 -=bob williams=-

This file should be called "SWAPSYS" on your computer.

```
ECHO OFF
REM
REM SWAPSYS version 1.0
REM Batch utility to change MDOS SYSTEM/SYS versions
REM (C) 1990 Bob Williams
REM
REM May be freely used, distributed, and modified on a non-commercial basis
REM provided credit is given to the original author
REM
REM Last update: 03/03/90 23:14:00
REM
REM =====
```

```
ASSIGN D=hdS1:
IF EXIST D:\SYSTEM/SYS" GOTO CANT
ASSIGN D=HDS1:
FOR %XS IN (V114 V96H V97H) DO IF %1==%XS GOTO VALID
GOTO USAGE
:VALID
IF NOT EXIST D:\SYSTEM/SYS" GOTO WARN
IF %1==V114 GOTO V114A
IF %1==V96H GOTO V96HA
:V97HA
IF EXIST D:\V96H GOTO V97HB
FOR %XF IN (V114 V97H) DO IF NOT EXIST D:\%XF GOTO ERR
RENAME D:\SYSTEM/SYS" V96H
RENAME D:\V97H SYSTEM/SYS
GOTO DONE
:V97HB
IF EXIST D:\V114 GOTO CURRENT
IF NOT EXIST D:\V97H GOTO ERR
RENAME D:\SYSTEM/SYS" V114
RENAME D:\V97H SYSTEM/SYS
GOTO DONE
:V96HA
IF EXIST D:\V97H GOTO V96HB
FOR %XF IN (V114 V96H) DO IF NOT EXIST D:\%XF GOTO ERR
RENAME D:\SYSTEM/SYS" V97H
RENAME D:\V96H SYSTEM/SYS
GOTO DONE
:V96HB
IF EXIST D:\V114 GOTO CURRENT
IF NOT EXIST D:\V96H GOTO ERR
RENAME D:\SYSTEM/SYS" V114
RENAME D:\V96H SYSTEM/SYS
GOTO DONE
:V114A
IF EXIST D:\V96H GOTO V114B
FOR %XF IN (V97H V114) DO IF NOT EXIST D:\%XF GOTO ERR
RENAME D:\SYSTEM/SYS" V96H
RENAME D:\V114 SYSTEM/SYS
GOTO DONE
:V114B
IF EXIST D:\V97H GOTO CURRENT
IF NOT EXIST D:\V114 GOTO ERR
RENAME D:\SYSTEM/SYS" V97H
RENAME D:\V114 SYSTEM/SYS
GOTO DONE
:CURRENT
IF EXIST D:\%1 GOTO ERR
ECHO
ECHO MDOS %1 already selected.
ECHO No changes made.
GOTO EC
:WARN
ECHO
ECHO ERROR - Could not find SYSTEM/SYS! Better check it out BEFORE rebooting!!!
ECHO (Drive assignment D=HDS1: assumed.)
ECHO No changes made.
```

```
GOTO EC
:ERR
ECHO
ECHO ERROR - Inconsistent or missing system versions in root.
ECHO No changes made.
GOTO EC
:DONE
ECHO
ECHO SYSTEM/SYS file swapped. MDOS %1 will be loaded on reboot.
ECHO
ECHO MDOS version IN USE is:
VER
GOTO EC
:CANT
ECHO
ECHO ERROR - MDOS v1.14 in use.
ECHO Use MDMV to change system versions manually.
ECHO No changes made.
ECHO ON
GOTO END
:USAGE
ECHO
ECHO Usage: SWAPSYS version (version = "V114", "V96H", or "V97H")
ECHO
ECHO Drive assignment D=HDS1: assumed.
:EC
ECHO ON
:END
```



RE-SETTING THE CPU

A HARDWARE MODIFICATION

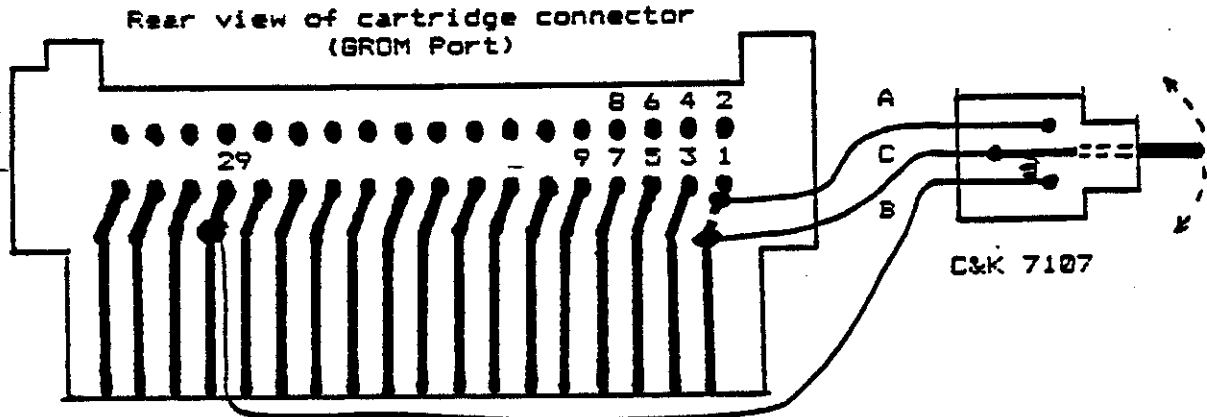
re-written by Paul Hulvanev

Reprinted from Hunter Valley 99er News - December 1987

Original article written by John F Willforth from the West Penn 99's Club, Jeaneette, PA.

This console modification allows a reset of the CPU without powering down, a handy feature for getting out of a crashed program or a program with a disabled QUIT key. It also allows a module to be changed without reset, handy for cartridge dumps, and in the normal position everything is back to normal.

To do the mod you will need a three position switch with a spring return to centre on one side and stay in position on the other. A C&K 7107 is suitable and available from electronic stores.

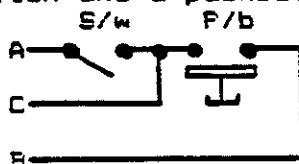


Looking at the back of the GROM Port cut the track coming from the number one pin of the module and solder the wire from the centre of the switch just below the cut. The wire from the stay put side of the switch goes to the other side of the cut track. This allows the 'normal' operation by joining the track together by means of the switch. (C-A). When switched to the centre position the track is opened up and prevents resetting of the CPU when a module is inserted. (As shown above). The third wire is soldered onto the track from pin 29. This is the spring reset position and provides a reset signal to the CPU. (C-B).

Take care when cutting the track that the cut is above the connector socket that the GROM Port plugs into. When cutting the track use a sharp knife to cut the track then apply a hot soldering iron to the section to be removed. The heat will lift the track off. When soldering the wires on only apply the heat for a short time to prevent the tracks from lifting.

The suggested switch fits on most consoles in the space beside the = key. We had some trouble with two consoles that had a metal frame around the keyboard, it interfered with the switch and we had to relocate the switch to the side of the console.

If the suggested switch is unavailable a substitute can be made from a switch and a pushbutton as shown below.



Thanks to John Willforth for a simple but very useful modification.

PUTTING GROM BASED CARTRIGDES IN YOUR CONSOLE (The easy way) John F. Willforth

If you would like to install several (up to 6 GROM chips) inside your own console without any circuit boards, and just a little wire, listen up!

Because the addressing is internal in a GROM, they can be stacked, and all of the GROM sockets in the TI-99/4A are pin for pin identical to each other. Take GROM 0, 1 and 2 from their sockets above the CPU chip, and stack them carefully and solder ALL 16 of their legs together. Now plug the whole 3-Chip unit in the GROM socket next to the Sound chip, observing direction (pin 1 location). Now you will note that you have two empty GROM sockets with the potential of six of these little beasties being stacked right on the CPU board. First though you better test the console to see that you have everything still operational.

Multi-Plan requires five GROMS, and Editor Assembler one, for a total of six, and this will be one example of a full boat for these sockets without cutting a hole in the RF shield to stack these chips to sky-scraper proportions. You may prefer TI-Writer, one GROM, Disk Manager II, two GROMS, or any of the many GROM only cartridges that TI made, even games could be included in this list.

To keep this simple, however, I reference Multi-Plan, and Editor Assembler. Remove the groms from their circuit boards carefully. Since you must keep all five of the MP chips selected at the same time, I would recommend that you make note of the E/A chip so that it doesn't get mixed with the MP chips just yet.

Stack any three of the MP chips and solder them together as you did to the console GROM chips earlier. Cut the part of pin 14 off the bottom chip of this 3-chip unit so that when this unit is inserted in the middle of the three sockets, there will be no connection to the corresponding pin in the GROM socket, but be sure that all three GROM pin 14s are soldered together. Now take the other two MP GROMS and piggyback them, and cut the bottom of pin 14 as before. Pick up the E/A GROM, and bend pin 14 straight out, you don't have to cut it's pin. Slip the two MP GROMS on the TOP of the E/A GROM, and solder ALL but 14

Using 3- 12" lengths of multi-stranded wire (ribbon-cable works well), attach the center wire to the column of three pin 14s on the console GROMS by using a low wattage soldering iron, and one of the other two wires to the single pin extended from the E/A GROM, and the remaining wire to the two pin 14s of the MP immediately above the E/A GROM. Connect the two MP GROM pin 14s to the three MP GROM pin 14s in the middle GROM socket using a short length of wire.

Using a SPDT switch (on that is OFF in the center, and will stay on when it is thrown to either side), solder the center wire (from pins 14) of the console GROMS to the center lug on the switch. Attach the other two wires to either of the two remaining lugs on the switch.

Before buttoning up the console test the switch to see that if the switch is in the middle on power-up, only Console BASIC is on the menu. When the switch is thrown in on of the two possible directions, on power-up, BASIC and EDITOR-ASSEMBLER will appear on the screen, and in the third position, on power-up, BASIC and MULTI-PLAN will appear on the screen. Then locate the switch inside the console in a convenient position, and button it up.

If you desire more selections, follow this same scheme but use a rotary sw. to allow more selections. This works, and should take very little time. You may want to order your GROMS from TI, instead of testing up a cartridge. GOOD LUCK!

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99-Animator: a review by John Thomson, STICC

99-Animator is a fairware assembly language program written for the TI99/4A by Mike McCann of McCann Software, P.O. Box 34160, Omaha NE 68134. For those who like it, or, more likely, for those whose kids like it, a fairware contribution of \$10 is suggested.

First of all, what do we mean by animation? It is the display of a sequence of pictures in rapid succession, each picture being slightly different from the previous one. Thus the illusion of continuous motion is produced. A familiar example is the motion of sprites. In order to get a smooth illusion of motion, the difference between successive pictures should be small. The smallest possible difference would be one pixel. In 99-Animator the smallest difference, i.e. the resolution of the picture, is a 4 pixel by 4 pixel block. Thus the motion is a bit choppy.

Although this is not a high-resolution graphics program, there are other advantages, such as the ease of use. No programming skills are required, thus the program is readily useable by children, although adults can have fun with it too.

The way it works is that there are up to 22 different frames (displayable pictures) that the program will display in succession. You can vary the speed. The process repeats until stopped.

Pictures can be created in different ways. You could manually draw each one, but this would be tedious and time consuming. You can draw one picture on a "mat" and have the program move the picture in any given direction. The mat picture will then be written to the frames automatically. You can then add more mat pictures and have them move in other directions to create a complex moving display.

In addition to the "moving picture" type of animation, there is the "changing picture" type. In other words, you can change the picture in some way from one frame to the next, with or without moving the picture around at the same time. In order to do this, you may need to edit each frame individually.

Pictures are drawn by moving the cursor around with various keyboard keys. In addition to up, down, left, and right, you have the four diagonals. Erasing is done in a similar fashion. You can also select colors: foreground, background, screen border, and cursor. Only the top two-thirds of the screen is used for pictures; the bottom third is used to display menu prompts and command entry.

Animations you create can be saved to disk. You can do a disk directory from within the program. A sample program is included that demonstrates the operation of a six-cylinder four-cycle internal combustion engine.

Because no programming skills are required, almost anyone can use this program, although an introductory demonstration would be useful since the documentation is minimal. You need extended basic or editor/assembler, a disk drive, and 32K memory.

In conclusion, I think 99-Animator is a good introduction to the basics of animation, and is a program you can have some fun with.

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