CENTRAL TEXAS 99-4A
USERS GROUP
THE PAPER PERIPHERAL

From the Presidents Desk

Hi there again folks. What an eventful month...   The Computer Fair went over real well; we gave out over 140 applications. We have four new members who joined immediately, and I hope we have a.. lets see.. maybe a 10% return on the applications. There were lots of interesting booths around the show, one of which had a printer which could, in "draft mode" print 700 cps, and in "near letter quality mode," print 350 cps. That's fast! Also on display were some excellent graphic pictures from Atari, Commodore, and several IBM clones. Atari and Commodore also had out their MIDI's (interfaces which allow the computer to control a synthesizer), but even with these, we still had the best "Axel F" of anyone at the show! At one point Mark heard another extremely good version from somewhere, and went to investigate from whence it came, and after a couple of minutes we realized it was the actual recording being played over the radio/intercom system!

Also this month heralds the appearance of the Geneve, Myarc's "computer on a card" "for" the 99/4A. It is a card that plugs into the P-box and has an IBM PC XT style keyboard. It uses a 9995 processor which runs at 12mhz and comes standard with 640k RAM! You plug the card in, use the old console to plug your cartridges into so the Geneve can dump them to disk. Then you unplug the console and put it on the shelf, not needing it any longer. You then have a 95% 99/4A compatible computer that is as powerful (and faster) than an IBM PC turbo XT! It is expandable to 2Meg, has MS-DOS (to run some of IBM's software, I believe) and all this for <u>less than $500!!</u> Now, why throw away your "little ol' TI" for a PC?

Oh well, as soon as I have a spare $500.... By the way, I expect we'll be seeing one at one of the meetings soon.

Bye for now,

Joe Pizzi

P.S. At the quasi-meeting we held at the fair, we determined that for the amount of money we were saving ($2 to $3), it wasn't worth the inconvience and potential loss of attendence to the meetings to have the newsletter be distributed at/after the meeting, therefore, as of the next newsletter, we will return to our previous practice of mailing the newsletter prior to the meeting. I hope this will stimulate increased attendence to the meetings. Also, does anybody else out there do anything interesting with their computer which might make an interesting (or just informative) article for the newsletter? I bet so. Let us know. Thanks.

Ask the Expert?

As I promised, here are some more hints on using the debugger to find bugs in a program. You'll recall from last month that I told you how to load the Assembly Language debugger and set up to begin debugging. This was a chore in itself. Now I'd like to give you some debugging techniques, but in the intervening month, I realized something. These techniques can also be used to debug BASIC programs, as the BASIC debugger provides similiar features: Setting breakpoints, examining memory contents (variables). So I thought that, at the cost of not going into great depth on how to invoke the breakpoint setting commands or examining memory, I would talk about debugging techniques in general terms. This would allow both groups of programmers to benefit. If you feel that you don't know how to set breakpoints in BASIC or Assembly Language, I encourage you to take a moment and refer to the manuals on these subjects. They provide adequate information on the subject. Then come back here for the rest of the story.

Step 1 - The scene of the crime. Most bugs manifest themselves as some visible problem in the program's output. And usually, most programmers can find the spot in the program that controls its behavior at that point. And sometimes, the programmer can imagine what the variables in the program are at that point, and from that deduce where the program is going wrong. But not all the time. Sometimes the programmer is not always sure of where the bug is in the program, and othertimes the programmer may have a misconception of what the variables contain. This is where the debugger comes in handy. Breakpoints can be set is various places in the program where the bug may be. Then the program can be executed and exercised until the bug occurs. If the breakpoints are set close to the problem, then hopefully the program will hit one soon after the problem happens.

Step 2 - Taking fingerprints. With the program sitting on a breakpoint near the problem, it is time to use another of the debugger's tools, examining memory. Look at the program's variables that are relevant to this section of code. Usually most problems show up as a memory location that has a bad value in it. From this a programmer may be able to look the program and figure out where this bad value came from, but if not, then we must preceed to the next step.

Step 3 - Trapping the bug. In order to trap a bug, it is necessary to set a breakpoint in the program before the point where the bug occurs. Next execute the program causing the breakpoint to be hit. Then use the debugger to examine memory. If the bug has already caused bad data to be in memory, then you're too late. Abort the program and try again, this time setting the breakpoint sooner. Once a point has been found that shows good data in memory, then let the program proceed using breakpoints to stop the program and keep an eye on the memory looking for the bad data to show up. I usually start by taking big steps thru the program, setting the breakpoints after calls to subroutines and loops and then examining memory. When the bad data shows up, you have narrowed the location of the bug down to between two points. Abort the program again, set the breakpoint to the last known good place, and have another go at it, this time taking smaller steps

through the program. Eventually, you'll come to the place in the program where the bad data is introduced and usually you'll have your bug.

Step 4 - Protecting the innocent. Sometimes the bad data is caused by other, previously unknown, bad data. In this case you'll have to perform step 3 all over again, looking for the cause of the new bad data. This step may have to be performed many times, following the trail of clues (bad data) until the real bug is found. Patience is a virtue when looking for bugs.

I'd like to leave you with a few debugging DON'Ts that I've picked up using the assembly language debugger over the past year. First, don't try to use the debugger to debug a subroutine that calls KSCAN or SCAN. The debugger uses these routines and changes the variables that they use. Thus setting a breakpoint after a call to KSCAN or SCAN will do little good. I recommend setting the breakpoint after your program has examined the KSCAN parameters all that it needs. Also, the debugger doesn't wait until you've lifted your finger from the <ENTER> key to execute your program. Thus setting a breakpoint just before a call to KSCAN and then executing will result in the call to KSCAN returning that <ENTER> is being pressed. I recommend setting a breakpoint to before KSCAN to check variables contents, but don't expect to get meaningful information from the call. Second, don't use the debugger on a routine that uses VDP registers. The debugger also uses the VDP memory, thus is changes the VDP write and read registers. If you have a routine that sets these registers and expects them to stay set (such as a scroll routine), don't set a breakpoint in the middle of these routines. If you have a bug in these areas, using the debugger will help you get some information, but sitting and staring at the listing of the program may be only way to solve the problem.

I hope that these debugging techniques are useful to you. If I think of anymore I'll pass them along to you.

Mike Schultz

Central Texas 99/4A Users Group
General Membership Meeting
June 12, 1986

The June meeting of the Central Texas 99/4A Users Group was held on Thursday, June 12, 1986 at the Commissioner's Court Room of the Travis County Courthouse Annex building. The meeting was called to order at 7:40pm by the Secretary, Mike Schultz. The President, Joe Pizzi, had volunteered to return home to get a piece of necessary computer equiptment for the meeting, and he joined the meeting in progress.

The minutes of the May meeting were read by the Secretary, Mike Schultz.

The Treasurer, Paul Dunn, made a treasury report. Following the report, Paul informed the group that his supply for diskettes had cease

to be available.

There was discussion about purchasing 50 diskettes from another source for resale to group members at the next meeting.

There was discussion about the group's activities at the Austin Computer Faire. Mike Schultz informed the group that he had received flyers from Miller's Graphics, Ryte Data, and Ron Albright (The Orphan Chronicles) to give out at the meeting. He also said that he was going to contact other sources for information on /4A products.

Mark Milam and Mike Schultz announced to the group that the Hideout Bulletin Board was up and running and encouraged those members with modems to call it up.

The meeting adjourned at 8:10pm.

                        Mike Schultz
                        Secretary

From the Editors Keyboard

Welcome everyone! Is it time for the newsletter already ? Gee, time flys when you are having fun! The fun which I am refering to is the Fourth Annual Computer Faire. The persons that did show up found it to be very interesting (even though the most of what was there was the IBM AT style computers). I know that I had a good time being there, as we handed out in excess of 100 applications!! That sure was impressive for an orphan computer!
All things considered, I thought it was a good showing in the support of our machine.
The other thing that i wanted to tell you about was the announcement of the Myarc card computer, named the Geneve, it now gives the TI-Writer and the Multiplan a full 80 columns!
It also comes standard with 640 K of RAM!, an IBM style keyboard, and is expandable to 2 megabytes!! And is running on a 9995 microprocessor at 12 MHZ, which means that almost all programs will run between 3 and 6 times faster!
It also has ports for RGB video, composite video also, a mouse port, and has 128 k of VDP ram!
The ad goes on to say that the new computer is over 95 precent compatable. For the dealer closest to you call: (201)766-1700, this is the phone # for MYARC. Now for the best part, the price you say, about $900 right?, wrong, it's only $495 (suggested retail), and that to me is a reasonable price for the amount of computer that it claims to be! I wish to thank the MICROpendium for the information for which this article is based.

I also wish to thank the people of Millers Graphics, Ryte Data, MICROpendium, and Dr.Ron Albright for the flyers which we distributed during the faire

As a few of you noticed, I have been including a questionaire in

your newsletter (last month also!) I wish to thank the persons that
have to date taken the time to fill out the questionare, now for the
rest of you that have not, you will find , once again, a questionare
with your newsletter, those of you that do not fill these out will
continue to get them till you do!
        So please ask yourself,
                        Are you doing your part?

    What do YOU have to say?

                                MARK MILAM
                                EDITOR

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Who We Are:

        We are a non profit organization whose membership is open to
anyone interested in the activities of the group. All members pay
annual dues of $15 . The membership year is one calendar year from
receipt of your dues. You are invited to attend a couple of meetings
before deciding if you wish to join.

    OUR MEETINGS:

        Our meetings are on the second Thursday of each month, at 7:30 PM,
in the County Courthouse at the corner of 10th and San Antonio, on the
second floor. Each meeting starts with club business and is followed
by a demonstration or talk. The second meeting of the month is our
special interest group, the Assembly Language SIG. Everyone is urged
to share information on topics related to the TI 99/4A -- software
review, hardware availability, programming tips, etc.

    MEMBERSHIP:

        You may join at any time of the year. Each membership "unit" has
one vote in club matters and only one person from a "unit" may hold
club office (on the other hand your entire family is invited to serve
on club committees and participate at meetings and in meeting
planning!). Our monthly newsletter is available to members at the
first monthly meeting and is sent to those who don't attend. At
meetings, you may buy 5 1/4 " disks for $7 each box. We buy these
items in bulk quantity and charge cost plus enough to keep several in
our library.

    OUR LIBRARY:

        Currently, our library is located at the librarian's house and
will be available at each of our meetings. Our library has some 350
programs on disk and tape. Roughly half of the library's programs will
run on just the console (some may require joysticks) and most of the
others only require the Extended Basic module. We have programs of all
types (games, education, scientific, and business and household
management) and we poll the membership's interests before purchasing
more. Above all, we are a membership organization. We depend on

everyone for directions the group should go and activities we should undertake. Join our group and share your ideas!

MEMBERSHIP STUFF
WELCOME

I wish to welcome to our group the following new members:
Copperas Cove ISD.
Jeffery A. Kenner

I wish to thank the following persons for renewing their membership:
Robin R. Brummet
J. E. Washek

I hope that all of this information is correct, but if it is not I am sure somebody will let me know.

TIME AGAIN
FOR THE RENEWALS

The following memberships will be expiring this month, and will not be getting a newsletter next month.

Linda C. Oakes
Anthony L. Stephenson

Editor

Classified Ads

WANT TO ADD 32k BUT DON'T HAVE A P-BOX? For a mere $35.00 I'll put 32k directly into your console or your speech-synthesizer. You supply console or speech, and cash and I'll do the rest. Call Mark at 836-3301 after 6:00 PM or drop me a note,
Mark Milam ,4203 Yucatan, Austin, Texas 78727-5967

Equipment for sale!!

Brian K. Neidig   TI 99/4a System for sale-includes console, 2
Rt.2 Box 157 CC   disk drives, 32k memory, and PEB. All in
Taylor,Tx 76574   EXCELENT condition. I also have 20 modules, 40
                diskettes, magazines, and several books. This entire
                system cost me over $2200. I am asking $600
                (NEGOTIABLE). I will consider offers on pieces. Call

Brian at (512) 352-8132 (Taylor) after 6 p.m.

Zack Swenson 836-2726	Black console, speech, PE Box, 32k, RS-232, 2 disk drives, software, and a printer (needs repair)
Rick Prekap 255-1065	Console, game carts (3 ea)
Mike Green 1604 Magic Hill Pflugerville,Tx. 251-3684	Complete TI system for $550.00 call or write for more details.
John 258-2134	Console, P-box, 32k, RS-232, Epson RX-80 printer, TI-Writer, E/A, ExBASIC, Forth, and games. Whole system : $625.00, W/O printer, $475.00, Also has TI-LOGO;$30 TE-2; $10.00
R.L. Tipton PO Box 1198 Rockdale,TX. 512-446-2910	Console,32K memory expansion, Percom disk drive, several games, desk, and tv display, $400 takes it all
Richard Glass 12401 Beartrap Austin, TX. 258-2892	TI LOGO II; $25, Editor/Assembler package;$20
John K. Strickland 12717 old Anderson Mill RD. Austin,TX. 78726 266-2788	Console with cassette cable and player, Asking $50
Craig Deere 8104 Forest Mesa Austin,TX. 78759 346-2609	Console, with TI cassette player. $50, (Extra software available)
Sue Lacey 892-4535	Console, and some software,Flexible $
Ed Eakin (817)699-1368 (answering machine) (mon,wed,fri)	Complete TI system, console,PEB,32K,RS-232,Disk controller,Disk Manager, and TI-Writer. First $250 takes it all. (817)634-5626
Diane Leonard 451-1702	Two complete P-Code systems for sale! Leave name and phone number if interested

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That seems to be all this month, if I have made any errors, please let me know, also let me know if the equipment you have listed is sold, or if you want it run in the newsletter next month.

Mark Milam
Editor

Commercial Ads

Commercial advertisements are welcomed by our newsletter. This newsletter can provide a select, specialized audience for advertisers. Advertisements also help our group by offsetting the printing and mailing costs of the monthly newsletter. Any advertisment must arrive by the first of the month to be included in that month's newsletter.

The cost of placing a full-page ad is $20. The cost of a half-page ad is $10. The ad should be photocopy ready. Some flexibility is allowed in the size of half- and full-page ads--but let's not overdo it!

Classified ads are free to individuals both members and non-members. Send your ads to Central Texas 99/4A Users Group; Box 200246; Austin, Texas 78720-0246

Current Officers

President	Joe Pizzi	444-6829
	1300 S.Pleasant Valley Rd.,#121,Austin, Texas 78741	
Vice President	Al Caldwell	327-2462
Treasurer	Paul Dunn	258-4308
Secretary	Mike Schultz	835-2377
Librarian	Mark Milam	836-3301
Newsletter Editor	Mark Milam	836-3301

Correspondence for the group can be sent to:
the Central Texas 99/4A Users Group
Box 200246; Austin, Texas 78720.
or to the address given for the president.

Meetings Calendar

The following is a list of the currently scheduled meetings.

July 10	August 14	September 11	October 9
November 13	December 11		

The meeting is scheduled to be held in the County Commissioner's Courtroom on the second floor of the Travis County Courthouse annex, which is at 10th and San Antonio, in Austin Texas.
Meetings start at 7:30 PM and last until they throw us out!

The Assembly Language SIG is held the Wednesday following the general meeting.

Newsletter Exchange

Our users group exchanges newsletters with several other recognized 99/4A Users Groups. The exchange is made with the
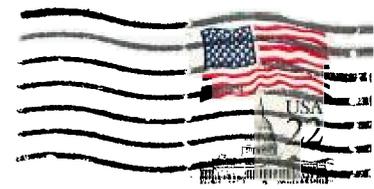
understanding that, with proper credit to both the newsletter and author (if listed), your users group can reprint articles from our newsletter and, with proper credit, we can reprint articles from exchanged newsletters. (Please feel free to correct any typos, misspelling, bad grammar, etc.; we will do the same.)

Please send your exchange newsletters to:

Central Texas 99/4A Users Group
P.O. Box 200246
Austin, Texas 78720-0246

Central Texas 99/4A Users Group
        P.O. Box 200246
  Austin, Texas 78720-0246

P.O. Box 11783
Edmonton   Alberta