FROM OUT OF 'THE ASHES' RISES

>>>> ZXir QLive Alive! <<<<

The TIMEX/Sinclair NorthAmerican User Groups Newsletter

TIMEX/Sinclair NorthAmerican User Groups *Auburn, Indiana*
Volume 2, Number 1 Spring 1992

MEMORY MAP

ROUTINES	*ADDRESS*
T/SNUG Chairmen	1
T/SNUG Information	2
ZXir QLive Alive! Article Contributions	2
Contributors to this Issue	2
From the Chairmans Disk	2
TREA$URY NOTE$	3
INPUT/OUTPUT	4
NEWS ITEMS	5
LIBRARY	6
Articles:	
CASSETTE LOAD/SAVE Problems Solved - PART 4	6
AN UPDATED ZX81	9
BENCHMARKING THE ZX81	10
DERIVING YOUR TAX THRESHOLD ON TS2068	12
TAX-I-QL TIP	13
Ads	14
And now a word from our Vendors	15
ZX-91 TEN YEARS LATER #3	27

T/SNUG CHAIRMEN

Here is the list of 1992 T/SNUG Chairmen and how to contact them. We wish to support the following SIGS: ZX80/ZX81, Z88, SPECTRUM/TS2068/TC2068 and QL. If you have questions about any of these fine machines contact the Chairman.

POSITION	NAME	PHONE	PRIMARY FUNCTION
Chairman	Don Lambert	219-925-1372	Chief Motivator
Vice-Chairman	Dave Bennett	717-774-7531	CATS/Z88
Vice-Chairman	Al Feng	708-971-0495	CATUG/QL Library
Vice-Chairman	D.G. Smith	814-535-6998	Tape & JLO Library
Vice-Chairman	Ed Snow	407-380-5124	ZX81 Tape Library
Vice-Chairman	Rod Gowen	503-655-7484	CCATS
Vice-Chairman	Rod Humphreys	604-931-5509	VSUG/TS2068
Vice-Chairman	Bob Swoger	708-837-7957	Newsletter/BBS SysOp
Treasurer	Abed Kahale	708-885-4337	CATUG/Cash Tracker

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T/SNUG Information

ZXir QLive Alive! is the newsletter of T/SNUG, the TIMEX/Sinclair NorthAmerican User Groups, providing news and software support to the T/S community in at least four newsletters per year.

It is our goal to build a Public Domain software library and develop a list of available software for all T/S machines showing the source.

Vendors have free space in this newsletter which they receive free of charge so that they may see we are still out here. If you feel that T/SNUG should perform other tasks, let us know your feelings.

T/SNUG wishes to have one chairman from every T/S user group who will take charge of sending us their groups newsletter and other correspondence.

We encourage your group to copy this newsletter and distribute it at regular meetings to all of your members. If you can't copy this newsletter, perhaps we can provide a disk with the articles on it for use in your newsletter.

Articles appearing in this newsletter can be obtained by downloading this newsletter from our BBS.

For an annual contribution of $10.00 you can keep T/SNUG alive! Send your contribution payable to **A. Kahale** at:

ABED KAHALE
ZXir QLive Alive! Newsletter
335 W NEWPORT RD
HOFFMAN ESTATES IL 60195-3106

Tele: H708-885-4337

ZXir QLive Alive! Article Contributions

If you would like to contribute an article to the newsletter, upload a file to our BBS called TSNUG.ART . If you have an AD for the newsletter UPLOAD a file called TSNUG.ADS. If you have NEWS to POST about your group, UPLOAD a file called TSNUG.NWS .

If you need help contact the SYSOP by E-MAIL on the T/SNUG BBS, mail or by phone:

BOB SWOGER
613 PARKSIDE CIRCLE
STREAMWOOD IL 60107-1647

It is preferred that you call: H708/837-7957 or W708/576-8068

If you can only contribute hard copy, tape or disk format, send your inputs to:

DON LAMBERT
ZXir QLive Alive! Newsletter
1301 KIBLINGER PL
AUBURN IN 46706

Tele: H219-925-1372
Please call before sending articles.

CONTRIBUTORS TO THIS ISSUE

Al Feng
Gary Ganger
Warren Jackson
Joan Kealy
Marie Kendoll
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Robert Shade
John Shepard
Edward Snow
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FROM THE CHAIRMANS DISK

END OF A YEAR
AND
LOOKING BACK.

The Chairman reminiscences!

I look at the world of ZX computers as a training field/hobby. Some use it to begin to learn about computers and get thrilled by more bells and whistles and faster speed and move on to other makes/models; others look around and either because they don't want to spend (or can't) large bucks up front to get into heavily advertised computers they go into being

T/Sers with the idea of learning about computers to satisfy an urge - or a need to have computing power and get hooked on the T/S machines or else learn enough to but don't want to go into the necessity of another learning curve to learn a new system. For some the T/S computers do as much or more than they need and feel no desire to check out other computers. Some are like a young kid with his first jalopy - getting it only to 'learn to drive' and abandoning it when he can afford a more expensive model.

So there is a need for a National Organization to help tie all the T/Sers together and be a central clearing house for information and support. That need was recognized in the past and is still true. With the demise of the leading magazines and those not so well known, there is no other source of information in North America except the user groups and UPDATE MAGAZINE. The groups are more concerned with their local members than the needs of non-locals. Corresponding with Out-Of-Town members is very time consuming. Only an organization dedicated to that concept can serve folks with no local user group.

SNUG began in Florida during 1988 and in concept was a good idea - what happened next, I do not know. Maybe all energy was expended in the process of getting a state charter and all of that.

The SNUG Organization has withered away except for the start of the software libraries - that is one good thing that has come out of SNUG. As far as promised newsletters go, the few issues Paul Holmgren did in 1990 were paid for out of his own pocket. I was asked to be SNUG newsletter editor in November of 1990 and in the spring of 1991 there was an issue ready to mail but without finances there was no mailing. It was hard to face that fact.

When Bob Swoger called me in April 1991 and suggested we issue T/SNUG's ZXir QLive Alive! on the back of CATUG's NITE-TIMES NEWS - I was thrilled and yet - reluctant - thinking about whether the T/Sers would be willing to take a chance on not being "burned" again and also knowing that, if I turned down the Chairmanship, there might not be a national newsletter.

But checks kept coming in, not fast, but enough to get us going and of course the $150 contribution from VSUG of Vancouver was a turning point in our finances. We hope to be able to provide a means to enable T/Sers to survive longer with support provided by T/SNUG.

In hindsight, some of my fears never materialized, the proof of this is that there are some out there still working with the ZX computers and, more importantly, some are still developing new software and hardware. Our numbers have dwindled but we still exist. I look forward to another year of ZXir QLive Alive! 0/0

Chairman Don
TIMEX/Sinclair NorthAmerican
User Groups

TREASURY NOTES

As of March 1, 1992 with $762 from 6 groups and 44 individuals, with expenses of $357.29, we have a balance of $404.71

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

ZXir QLive Alive!

Renewal Time

$10.00 for ALL!

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

Please include your ZIP+4 code and your phone number when you renew your membership. It will speed up the mailing.

Abed Kahale, Treasurer
TIMEX/Sinclair NorthAmerican
User Groups

INPUT/OUTPUT

Warren Jackson writes:
Thanks for sending those two issues. [?????] Impressed by the pro look a la UPDATE. Surprised to see so many ads which is a big plus. On page 7 of the Fall 91 .... LarKen 256K RAMDISK kit for $20, is that a misprint? If it isn't, where can I get one? [*That was the price from Larry Kenny himself, but a recent request by John Shepard told us that they are now ALL GONE! Call RMG to see if he has any left.*]

Also, on page 5, Bill Angle was selling QLs for $55. I have one QL and would like to have another if he still has one left. [*Bill is part of the Indiana group. Contact Frank Davis for Bill's address and phone number.*]

May I have Vol 1, No.1 and, of course, the Winter 91 issue, my set would then be complete. [*You should have them by now.*]

Warren Jackson
1141 Edgemere Ter.
Roscoe IL 61073

Marie Kendoll writes:
The copy of VU-CALC modified for LogiCall you sent me crashes whenever I try to make calculations using #C. Can you check this out? [*You're right! I wonder how many copies went out with that bug? I will sent you a new version.*]

Also, does your version print to a large printer? [*As a result of your request, I have generated two utilities for the Sinclair community and two articles for our newsletters. I will send them along.*]

Robert Shade writes:
Enclosed $12 to start subscription with Vol 1, No. 1 Interested in buying LarKen Library disks for 1000 & 2068. Please send a list with synopsis of what's on each disk so I can make a reasoned selection. [*Watch for up-coming information in Summer issue.*]

It is my hope this TIMEX Group grows & grows to become a help & comfort to all T/S users everywhere. [*So do we all!*]

Robert Shade
3210 N. Broad Street
Philadelphia PA 19140

Ivan Zachev writes:
. . . I have a problem with LogiCall in regards to the standard LKDOS catalog. I use DSQD disk drives with my JLO/LarKen system. I wish to use the arrow keys feature of program LOADing but the programs I wish to LOAD scroll off the screen so that the HIGH-LIGHT LOAD routine is useless. HELP! [*If you are using LogiCall V4.8, update it to V4.9 by adding line 3 IF Z THEN ON ERR RESET. Modify line 10 to become line 15. Add line 10 IF Z THEN ON ERR GOTO H. Add LET Z=PEEK (PI+PI) = CODE "1": to line 49. Next change the VAL in line 110 to "460-(30*Z)" Finally, in line 20, change the "15" to "21". Now when the 'scroll?' prompt appears after the program you wish to LOAD shows up on your screen, press 'N' and ENTER, you will then get the 'Program?' prompt and the arrow keys LOAD feature will work.*]

Jay Shepard writes (on BBS):
L.B1 - Is V4.6L3 a test version of LogiCall? How does it differ from V4.4A3? The copy I got of V4.6L3 from Don Lambert was marked that version on the disc but had V4.4L3 in your opening statement of the LISTing. What gives? [*The latest version is V4.9_3 This means that the version is 4.9, the _ is for the base disk operating system type, L is for LarKen, F is for Fast LarKen, O is for Oliger, A is for AERCO and R is for RAMEX. Each type has to call in a different FORMAT.B_ program. Finally the LarKen DOS EPROM version number is given, 3 is the latest.*]

AUTOSTART installation does not perform as described in your instructions - it's probably this darn AERCO style LKDOS abortion - when I key A at the

program prompt to start the RAND 102 NMI save of L.B1 for AUTOSTART, I get 'error 430.1', but if I do a RAND 102:RUN from BASIC I get the AUTOSTART like it's supposed to perform but without the ease you had intended with your L.B1 line 460. [*Please note that you will use 2 tracks instead of one using that method. The problem is not AERCO/LarKen but rather the Jack Dohany EPROM Switch. It is slightly incompatible with LogiCall and other programs that use the DELETE keyword. Edit LogiCall lines 430 thru 450 changing the '?'s to DELETE in the TS2068 mode per Jack's instructions and the program will do what it was intended to do using only one track for AUTOSTART. Do not do this in the Spectrum mode. Don't forget to re-save L.B1 to all your disks overwriting the old L.B1 programs. I can never seem to get Chairman Don to do that.*]

Z-88 - I know your ads work because I got three leads from the Z-88 ad. [and let me take this opportunity to add that when something has been transacted, let me know to remove it from the board. Ed.] The last was a Nigel with an 800 number who use to be a dealer and is out of the business but has stock left and is sending a list with reduced prices. In looking for help and aids in running this jewel of a laptop I started with Mike Fink of Domino Cubes who had more trade paper ads than anyone including Sharps.

Unfortunately, I had ordered a manual he had written on the promise of the glowing review that E. P. Wannum (of John Last-Name-Unknown fame) had written. Well, E. P. not only doesn't know my name, he doesn't know a decent manual.

Fink gets $30 for it but it's no where near the quality of Barry Carter's SMART modem SW manual that he only got $12.50 for in it's hey day. [*Ouch! There ought to be a way to see it first, humm... Ed.*]

MSDOS/MSCRIPT - thought I'd try to read the PC discs Dave sent with this. HA! AERCO/LarKen bites me again. I can't read the HELP file because selection of that brings up a white no raster screen with the disc rolling, can't BREAK it so no way to modify it to show through INK & PAPER if that's the solution. I can read a track with option 2 on the menu but have no idea how to use it without a manual or HELP page and I have know idea what QUICKSCAN the files does because the cursor movement "A, S, & X" makes no sense. I just want to cuss. [*I don't know what QUICKSCAN is but I will upload a working copy of MSDOS.Bx to fix your problem.*]

I have been pleased to watch my high school junior daughter type term papers using the three different WPs - TASWORD2, MSCRIPT and Wordmaster switching between them easily. If an air-headed female teenager can use these machines then they must be worth the trouble.

Thanks so much, Bob, for taking time to read and try to resolve my problems and by the way, what's the toughest question you've ever had to answer? TIMEXON, Jay [*Well, Jay, by a wide margin, the toughest question I've ever been confronted with began, "Do you take this woman...?"*]

NEWS ITEMS

Mel Nathenson has forwarded the SNUG Treasury to Paul Holmgren. Paul incurred expenses for which he was never reimbursed. It is Pauls intention that the remainder of these funds be forwarded to T/SNUG along with the names of the contributors so that these past members of SNUG can be brought into the T/SNUG fold. Many still do not know of T/SNUGs existence. It is not known if the list of names includes who contributed what or even how many names are on that list which is thought by Paul to be over 130. That

would mean a smaller portion than it would take to send out four newsletters. The hold up now will be getting those names.

Thanks to the efforts of Dave Bennett, SLIX now receives the newsletters of both T/SNUG and CATUG on disk. It still is not known why Bill Miller of SLIX would not download these newsletters from their prospective BBSs, unless it is the 20 cents per minute AT&T phone charge, but Dave has started a path using a Macintosh disk. Bill, I presume we can quit sending a hard copy of the newsletters to you?

SMUG, the Sinclair Milwaukee Users Group, has stated that they will cease publishing their newsletter soon. They also state that the club is not folding, so we hope to carry the minutes of their meetings in our pages soon.

The DMA ComputerFest in Dayton is scheduled for August 29 and 30 with a cut-off date for flee market tables of June 30. To date we have heard of no takers from the Sinclair community, perhaps because of low sales last year. Please let us at T/SNUG know if your group will be there so that we may try to spark some interest. See UPDATE magazine for details.

RANDOM BITS AND UNVERIFIED BYTES

I have heard that someone in the Dubuque, Iowa area had made some hard drive interfaces for the ZX81/TS1000 computers and sold at least two. If anyone has any further details about this I would like to get that information. The information hopefully will be about who made the units, when and who bought the units. The units were reported to have been sold in 1987 with 10 meg hard drives. And that would be equivalent to 25 double density disks. Normally all the disk drives that I know of for the ZX81 are single sided single density which would make a hard drive equivalent to 50 single density disks. Either way it would really be a lot of computer power for the ZX81.

One of the mass storage items missing from the TS2068 is a hard drive. I have heard that there might be a possibility of one. If so a 40 meg hard drive (if it is developed for that size) would be the equivalent of about 100 DSDD disks. Mind boggling. Perhaps if it were known that there is a market for a hard drive interface that would speed up development. The interface is the easy part, so I have heard, but the software would be a bearcat to write. Currently, someone is working on this and is trying to obtain the specs on the hard drives to help in writing the software. Someone also suggested that CP/M might be an answer for finding the software codes since CP/M is Z80 based. If anyone is interested let me know and if enough are interested perhaps one will appear. Wouldn't it be nice to have several hundred programs available without having to first find the disk they are on and to be able to LOAD them by typing in their file name instead of first searching through the disk boxes for the proper disk. [Get organized, Don, and use DISKS.B1!]

If you have any other bits and bytes of unverified material on the T/S computers please send them to the me. O/O.

LIBRARY

%%%%%%%%%%%%%%%%%%%%%%%%%%

TIMEX/SINCLAIR
PUBLIC DOMAIN LIBRARY
AVAILABLE SOON!

%%%%%%%%%%%%%%%%%%%%%%%%%%

We have found quality problems as we prepare the material to travel around the continent. Hum on the tapes makes some programs un-readable. Smitty, the LarKen disks are in better shape, we might use them to fix the tapes.

ARTICLES

CASSETTE LOAD/SAVE ROUTINE AND PROBLEMS FOR THE ZX81
PART 4
Compiled by Donald S. Lambert.

SYNCHRO-SETTE VOL. 2 #5/6
JUNE/JULY 1983
WINKY BOARD 2

For those of you who are not familiar with what the WINKY can do, you can make duplicates of a cassette tape from one recorder to another with this device in between the two recorders, no matter how many programs are on the tape.

There is another important use. Do you have a noisy RAMpak that introduces noise onto a tape when you are trying to save a program? When you don't use the RAMpak, the noise disappears, so you know it is the RAMpak.

We have one such RAMpak that is so bad, saved programs cannot be reloaded no matter what the volume adjustment is at. When listening to the tape with the cords disconnected from the recorder, it sounds like the sound a train makes at a high speed when played back with program pulses being all but drowned out.

When the WINKY 2 board was installed (just plugs in between the computer and the recorder) the program loaded with no problem. Listening to the tape through earphones showed all the noise to have disappeared.

LOADING/SAVING PROGRAMS 8K ROM

EZRA GROUP
P. O. BOX 5222
SAN DIEGO, CA 92105

SAVING

Keep the tape computer connector always plugged into the EAR and MIC receptacles of the computer. however at the tape recorder end only keep the one connected which you are using. Let us say the last line of your program is 1000 SAVE "SHOOTIST". Then press LIST 1000 and ENTER. When the line 1000 appears at the bottom screen DELETE (SHIFT 0) the 1000. Move the tape to the position you want it. Then voice record SHOOTIST three times and immediately stop the tape. Set the tape volume to level which saves the best. Start recording and immediately press ENTER. The computer can be close to the TV but the tape recorder must be maximally (connector at full stretch) remote from the TV and computer. Only the MIC side of the connector is plugged into the tape recorder. You can have TV sound up a bit as you record. If you have a long 16K program SAVEing you can do other things and when the buzzing sound stops and there is a 0/0 report bottom screen stop the tape and you have SAVEd a program. Note the start and stop tape position and mark them in a catalog together with the SAVE title. Replay some of the tape to make sure you hear the shrill buzz of program (MIC plug pulled out).

LOADING

LOAD in FAST mode. Type in the command LOAD "SHOOTIST". Locate your program on the tape from your catalog. After you hear the title (it should be three times) there is a faint buzz.

In a few seconds there is total silence. Stop the tape at the beginning of th silence. Plug into the tape EAR side of the connector. Leave the MIC plug not connected to the tape. Adjust tape volume to the known proper level. Push the tape PLAY switch and immediately press ENTER on the ZX. Have the TV sound up a bit and when the buzz stops and there is the 0/0 report bottom screen stop the tape and you have loaded the computer.

SAVING FAILS

Check to see the tape volume is high enough. Check to see that you are using the MIC connector. Is the MIC plug in the right receptacle? Is the tape remote from the TV and ZX? Reset the voice title and SAVE

again... it should work after all these checks.

LOADING FAILS

Do the above checks and also put the computer end of the connectors in and out a couple of times to shine the contacts. If you have a 16K RAM pack put it on and off twice to shine contacts. Sometimes the tape is stretched or glitched in other ways. Programs should always be saved twice. Do not load or save on metal tables.

CONNECTORS

The ZX comes with an 18 inch tape-ZX connector. The older ones had screw in tips which break after much use. The later deliveries are with unitary plastic tips and are more durable. In persistent failures check connector for breaks (this happened to one of our older models).

SAVING SCREEN DISPLAYS

```
  10 PRINT "THIS DISPLAY WILL
ERASE WHEN YOU HIT SAVE
""TEST"""
  20 SAVE "TEST"
  10 INPUT A$
  20 PRINT "THIS DISPLAY WILL
NOT ERASE WHEN YOU HIT SAVE"
  30 IF INKEY$="S" THEN SAVE A$
  40 GOTO 30
```

The first program is the regular way of saving. Try it and see that the screen display is lost when saving is finished. RUN the second program. Input any string (any set of one or more characters) and hit ENTER. Press SAVE and notice after saving the display remains on screen. IT will be saved. Remember you need the 30-40 continuing loop to make line 30 work from the keyboard. The double quotation marks are SHIFT Q.

FREQUENT SAVES

When composing or entering a long program SAVE after every 50 or 60 lines to avoid unfortunate losses from wipe-outs (crashes).

PAUSE CAVEAT

With ZX80/8K ROM or ZX81 FAST mode right after a PAUSE line you need a POKE 16437,255 line or crash happens in a few minutes.

VARIABLES AND ARRAYS

In a long program with large arrays and many variables (all these arise from LET statements) saving is prolonged because these items too are saved. Press CLEAR and ENTER before you save and all these will be cleared away shortening saving time. A shorter program has less chance to be glitched. If you want to save these items because they would be hard to regain or type in then do this: For the second last line of the program insert a REM statement (the last line is the SAVE line). Before you save hit LIST (REM line number) and ENTER. Then SAVE the program. Later when loading this program hit ENTER and the last two lines will appear on the screen. The REM line should be something like 990 GOTO 100 to PRSRV VARBLS. RUNning a program wipes out all variables. You use a GOTO statement to preserve them and the GOTO number must be past all the DIM and LET X=0 type statements or there will be clearances. The REM line reminds you not to RUN when you first load the program.

LARGE TO SMALL

You cannot LOAD a small program SAVEd from a 16K ZX into a 1K ZX. You can from 1K to 16K. Large to small no, small to large yes.

COMMON-EST CRASHES

Jiggling transformer jack or RAM pack. SOURCE NOT KNOWN SUSPECT SYNC MAGAZINE.

SAVING UNSAVEABLE PROGRAMS

How do you back up programs you can't break into, like machine code (MC) or self running programs? You know the importance of backups if you or your tapes ever malfunction. This trick LOADs any program and then returns to BASIC, without activating the error detector.

Hook up both EAR and MIC plugs so you can LOAD then SAVE. Put the tape in the tape deck without turning it on.

```
SAVE CHR$ USR 832 "PROGRAM
NAME"
```

You must change tapes quickly in the five - second silence between LOAD and SAVE, and

press RECORD/PLAY. (It helps to keep your cassette deck's hood opened.) If the program self - runs, it executes after finishing the SAVE. [*This is when two recorders would work fine and use the PAUSE control on the recorder. Don.*]

How does it work? USR 832 calls the ROM LOAD subroutine, and the two quotes hold the program name. (You can also type "" with no program name. The computer reads this as LOAD "". After LOADing, the USR call RETurns to BASIC to finish the line, evaluating to zero. CHR$ changes the zero into a string. The line reads SAVE " " (CHR$ of 0 is the space character) and the computer SAVEs the program. For SAVE and LOAD, the syntax checker looks only for quotes and any string, so the computer accepts the line and SAVEs.

Save a self - running program (with or without MC) by pressing BREAK after the program LOADs and starts to RUN. (If you can't BREAK in here, try CHR$ XX in response to an input prompt to get an error report. --LFV) This returns you to BASIC and a K cursor. LIST the program to find the line SAVE "program name". GOTO this line to SAVE the program under its name.

These methods worked on all my unSAVEable programs.

Gary Preston, Glade Hill. VA.

AN UPDATED ZX81

by

Don Lambert

Last Wednesday morning February 5th) as I was backing out of my garage a UPS truck began beeping the horn and the driver pulled up with a next day priority package for me. I was headed for Ft. Wayne (some twenty miles away) to do my twice a month (more or less) shopping so I set the package in the house and left. Upon returning, I opened the box to find a TS1000, the likes of which I'd never seen before.

The computer was sent to me by Terry Graham who told me about one he had modified that way. I had asked him if he would do one for me if I sent the parts. He sent it to me and asked for some copies of manuals that he didn't have. A fair exchange, I think.

On the left side just ahead of the power jack is a tiny toggle switch. Sticking out of the case below the keyboard is a ribbon cable for an external keyboard. On the upper right corner is a row of switches, the left is a red push button switch labeled "reset"; to the right of that is a tiny toggle switch labeled "enable disable (8-16K)"; and still another labeled "64K and 16K".

On the right edge is a row of three jacks labeled "SERIAL DATA PORT". The first is labeled "EAR TAPE/TS2068", the second "MIC TAPE" and the last "MIC TS2068". The three jacks were installed by instructions from the article "2K-SDP: A Serial Data Port" But Terry was not able to get it to work. I contacted the author of the article and he helped me get it working.

But I had one difficulty: I do not have a TV in the computer room so I had to move a 19" TV in to test the computer. I got a blank nothing. I flipped the switch on the left side - still nothing. I tried my ZX81 in the Suntronics key board case that has been monitorized but still had the TV capability. That too had nothing. I eyed the TV, it had a game box attached. Touching the terminals with a screwdriver did not cause the screen to flicker at all. Luckily I had a game switch on another TV, I swapped it, the ZX81 in the Suntronics keyboard case worked, the new computer didn't.

So I took the back off to visually confirmed that the left switch was a power switch, however I noticed a loose wire going to the switch's center terminal. Looking elsewhere I

noted that a wire wrap wire going to a resistor on the reset switch was also loose and the resistor was loose. I re-soldered all three places, replaced the case bottom and tested it.

I did the POKE 16389,255, POKE 16389,255 and NEW and then PRINT PEEK 16389 and got a report of 255. So the 64K in internal memory works. Without a monitor circuit I really couldn't test the computer further. There is a circuit to be installed to address individual blocks of 2K of memory in the 8K to 16K area (or I could use a SCRAM board) so that the 2K area that both the LarKen and the AERCO disk interfaces use can be switched off. I do need some of the 8K to 16K area if I want to use BBDOS for the AERCO system since it LOADs the BOOT disk into that area. The standard DOS for the AERCO does not need that area. But BBDOS makes a real disk system out of the AERCO so I want to use it that way.

I will consider what to do with the computer after I make the monthly trip to the ISTUG meeting in Indianapolis on February 29th. There is one person that works only with the TS1000 and I would like to show the computer to him.

Now I can move the computer board to the Suntronics keyboard case and add the switches to the case or I can wire a board like that. The way I look at it, with the RAM on-board the computer, there will be one less connector problem to worry about. Presently, the 8K to 16K is addressed as one 8K block but it is possible to address it in 2K blocks. I could try a SCRAM board, but that would bring back the connector problem again, maybe. Only by trying it will I find out.

References: "INTERNAL 64K RAM FOR THE TS/ZX" by Tim Stoddard, TIME DESIGNS May/June '87 Vol 3 No 4. "MAX 1000 MAKE THE MOST POPULAR "MODS" COMPATIBLE ON YOUR TS1000" by Tim Stoddard, TIME DESIGNS Sept/Oct '87 Vol 3 No 6. "2K - SDP: A SERIAL DATA PORT" by Kent E. Cook, SYNCWARE NEWS Sept - Oct Vol 5 No 1. 0/0

BENCHMARKING THE ZX81

by Edward Snow

The term "benchmarking" refers to the process of running a computer program on a computer and comparing the time needed to complete the program against other machines. Compilers and interpreters are also benchmarked against others in order to develop the fastest applications.

One program I often use as a benchmark is the "Magic Numbers" program. The term "magic numbers" refers to those four digit numbers that fit the following algorithm:

Take the first two digits as number1, the second two digits as number2.

Add number1 to number2 giving number3.

Square number3.

If number3 is equal to the original number then the number is "magic."

Take the number 2025 as an example. Number1 would be 20, and number2 would be 25. Number3 would be 20 + 25 or 45. Multiplying 45 by 45 gives 2025, so the number is "magic."

Since the range of four digit numbers extends from 1000 to 9999 inclusive, there are 9000 different numbers to check. If a person could check four numbers a minute on a calculator, the job would take 2251 minutes or about 37 1/2 hours to complete! Obviously this is a good job for a computer. By using a purely mathematical algorithm, the program lends itself to any computer language. A mathematical approach also gives the solution the

qualities of a good benchmark program.

The solution steps used, expressed in ZX81 Sinclair BASIC are as follows:

```
10 FOR X = 1000 TO 9999
20 LET A = INT(X/100)
30 LET B = X - (A*100)
40 LET C = B + A
50 IF (C*C) = X THEN PRINT X
60 NEXT X
70 STOP
```

In the above program line 20 gives the first two digit number, line 30 gives the second two digit number, line 40 combines them into a single number, line 50 squares the number and checks to see if it is "magic."

When this program runs in slow mode on the ZX81 the computer takes 23 minutes 26 seconds to find the series of "magic numbers." In fast mode the computer takes 3 minutes 44 seconds to find the series.

Luckily BASIC is not the only language available for the ZX81. Some alternative programming languages that I own are Artic's ZX-FORTH, Semper Software's Partial Pascal, and Intercomputer's MCODER.

Since FORTH is one of my favorite programming languages languages, and one I find to be well suited for 8-bit micro processors, I tested it first. In the past I have found FORTH to be extremely fast in execution. Because FORTH is a unique language FORTH programs are often unreadable by anyone who is not familiar with the language. For those of you who are familiar with FORTH, or for those who are simply curious, I include the FORTH code:

```
: MAGICNO 10000 1000 DO
I DUP 100 /MOD + DUP *
= IF I . THEN LOOP ;
```

As I expected, FORTH showed a substantial speed increase over BASIC. In slow mode FORTH took 1 minute 17 seconds (22 minutes and 9 seconds faster than BASIC). In fast mode FORTH completed the problem in just over 12 seconds; in both cases FORTH was about 19 times faster than BASIC!

Next I tested a PASCAL compiler/editor that Semper Software developed for the ZX81 in 1983. Although not a full UCSD PASCAL, Semper did an excellent job of putting a useful Pascal in a 16K environment. Partial Pascal makes excellent use of the ZX81 system and performed the "magic numbers" program very well. The code used was: Program Magicno (input,output);

```
Var origno:integer;
    step1 :integer;
    step2 :integer;
    step3 :integer;
    step4 :integer;

  Begin
     For origno:= 1000
      to 9999 Do
      begin
        step1:=origno
          div 100;
        step2:=origno
          mod 100;
        step3:=
step1+step2;
     step4:=
step3*step3;
     if step4 =
   origno then
     write(origno);
   end;
End.
```

Partial Pascal completed the program in 2 minutes 40 seconds in slow mode and 25 seconds in fast mode. In both cases Partial Pascal was about 9 times faster than BASIC.

The final benchmark was done using Intercomputer's MCODER program to convert the Sinclair BASIC program into machine language. I would have expected a machine language program to execute the algorithm faster than any of the other languages and I was not disappointed. The MCODER version of the program ran in 1 minute 13 seconds in slow mode, and 12 seconds in fast mode.

This represents a speed increase of about 20 times over BASIC.

After completing the language tests, I decided to benchmark the ZX81 itself against other machines. I chose another well known 8-bit machine (the Apple II+), and a 16-bit machine (the IBM PS/2 running at 12 mega-hertz). The following table shows the results of these tests in seconds (ZX81 times are in fast mode):

	ZX	II+	PS/2
Forth	12+	NA	5
Pascal	25	92	1.9
MCODER	12	NA	NA

As you can see the ZX81 compared very favorably to the Apple II+ system which sold in 1982 for over 20 times what the ZX81 cost. Although I am very fond of my Apple, if I want speed it appears my ZX81 is the best choice! The IBM was about 12 times faster than the ZX81, but considering that the system is 16 bit and costs about $3600 the ZX81 still comes out looking pretty good.

TSers, let 'em eat our dust!

DERIVING YOUR TAX THRESHOLD FROM YOUR VOTING STATUS:

by
Joan Kealy

ARE YOU

(1)SINGLE TAXPAYER FILING AS AN INDIVIDUAL?

(2)MARRIED BUT LIVING APART FROM SPOUSE FOR ENTIRE YEAR & FILING SEPARATELY?

(3)A MARRIED COUPLE FILING JOINTLY?

(4)A MARRIED COUPLE FILING SEPARATELY AFTER LIVING TOGETHER ANY PART OF THE YEAR?

SINGLE PERSON

1. TAXABLE INCOME	25600
2. -ADJUSTMENTS	0
3. RESULT (#1-#2)	25600
4. +EXEMPT INCOME	800
5. +FOREIGN INCOME	0
6. +HALF SS	840
7. RESULT (#3+4+5+6)	27240
8. -THRESHOLD	25000
9. AMOUNT OVER THRESHOLD	2240
10. MULTIPLY BY .5	1120

THE TAXABLE AMOUNT TO BE ADDED TO YOUR OTHER TAXABLE INCOME ON THE IRS 1040 IS THE SMALLER OF LINE 6 OR 10.

$840 TAXABLE AMOUNT.

MARRIED COUPLE FILING JOINTLY

1. TAXABLE INCOME	28600
2. -ADJUSTMENTS	0
3. RESULT (#1-#2)	28600
4. +EXEMPT INCOME	0
5. +FOREIGN INCOME	0
6. +HALF SS HUSBAND	4368
7. +HALF SS WIFE	2184
7a. TOTAL SS	6552
8. RESULT (#3+4+5+6+7)	35152
9. -THRESHOLD	32000
10. AMOUNT OVER THRESHOLD	3152
11. MULTIPLY BY.5	1576

THE TAXABLE AMOUNT TO BE ADDED TO YOUR OTHER TAXABLE INCOME ON THE IRS 1040 IS THE SMALLER OF LINE 6 OR LINE 11.(DSL).

$1576 TAXABLE AMOUNT.

P. S. I HAVE NOT RESEARCHED THE FACT THAT A WIFE'S SS WILL BE ADDED TO THE HUSBAND'S BUT I'M LEAD TO BELIEVE THAT THE IRS WOULD NOT LET THAT ESCAPE THEM.

SOCTAX.B1

```
  1 CLS : LET A=0: REM BASED ON
 8/91 "FINANCIAL FOCUS" FROM SCU
DDER
  10 PRINT AT 10,0;" DETERMINING
 THE TAXABLE AMOUNT OF YOUR SOCI
AL SECURITY BENEFITS": PRINT AT
15,0;"ENTER NO $$$ SIGNS WITH FI
GURES;"
  11 PRINT '"  ROUND TO THE NEAR
EST DOLLAR.  "
  12 PAUSE 380: CLS : PRINT "DER
IVING YOUR THRESHOLD FROM   YOU
R VOTING STATUS:"
  14 PRINT '"ARE YOU";''"(1)SING
LE TAXPAYER FILING AS AN INDIVID
UAL?";''"(2)MARRIED BUT LIVING A
PART FROMSPOUSE FOR ENTIRE YEAR
& FILING SEPARATELY?";''"(3)A MA
RRIED COUPLE FILING JOINT-LY?";'
'"(4)A MARRIED COUPLE FILING SEP
- ARATELY AFTER LIVING TOGETHER
  ANY PART OF THE YEAR?"
  16 INPUT "NUMBER OF CORRECT ST
ATUS?",A: IF A>4 OR A<1 THEN GO
```

```
TO 16
  18 IF A=1 OR A=2 THEN LET TH=2
5000
  20 IF A=3 THEN LET TH=32000
  22 IF A=4 THEN LET TH=0
  24 CLS : INPUT "TOTAL OF TAXAB
LE INCOME",I$: PRINT AT 1,0;"1.
TAXABLE INCOME";AT 1,31-LEN I$;I
$
  26 INPUT "FROM IRS 1040-ADJUST
MENTS TO    INCOME?",A$: PRINT A
T 2,0;"2. -ADJUSTMENTS";AT 2,31-
LEN A$;A$
  28 LET R1=VAL I$-VAL A$: PRINT
 AT 3,0;"3. RESULT (#1-#2)";AT 3
,31-LEN STR$ R1;R1
  30 INPUT "TAX-EXEMPT INCOME?",
X$: PRINT AT 4,0;"4. +EXEMPT INC
OME";AT 4,31-LEN X$;X$
  32 INPUT "FOREIGN INCOME NOT S
HOWN IN #1",F$: PRINT AT 5,0;"5.
 +FOREIGN INCOME";AT 5,31-LEN F$
;F$
  34 INPUT "1/2 OF SOCIAL SECURI
TY BENEFITS?",B$: PRINT AT 6,0;"
6. +HALF SS";AT 6,31-LEN B$;B$
  36 LET R2=R1+VAL X$+VAL F$+VAL
 B$: PRINT AT 7,0;"7. RESULT (#3
+4+5+6)";AT 7,31-LEN STR$ R2;R2
  38 PRINT AT 8,0;"8. -THRESHOLD
";AT 8,31-LEN STR$ TH;TH
  40 LET AM=R2-TH: PRINT AT 9,0;
"9. AMOUNT OVER THRESHOLD";AT 9,
31-LEN STR$ AM;AM
  42 IF AM<=0 THEN PRINT "NO TAX
 ON YOUR SOCIAL SECURITY  BENEFI
TS!": STOP
  44 LET R3=AM*.5: PRINT AT 10,0
;"10. MULTIPLY BY .5";AT 10,31-L
EN STR$ R3;R3
  46 PRINT AT 14,0;"THE TAXABLE
AMOUNT TO BE ADDED  TO YOUR OTHE
R TAXABLE INCOME ON THE IRS 1040
 IS THE SMALLER OF  LINE 6 OR 10
."
  48 IF VAL B$<R3 THEN PRINT AT
21,4;"$";VAL B$;" TAXABLE AMOUNT
"
  50 IF R3<VAL B$ THEN PRINT AT
21,4;"$";R3;" TAXABLE AMOUNT"
9989 STOP
9992 CLEAR : RANDOMIZE USR 100:
SAVE "SOCTAX.B1" LINE 1
9998 RANDOMIZE USR 100: LOAD "L.
B1"
```

TAX-I-QL TIP
by Al Feng

The matter of Uncle Sam's hand in your pocket should never be too far from your thoughts.

For those who may not be aware, TAX-I-QL (EMSoft) is the most extensive ABACUS/QLSS template one can use on his/her QL.

TAX-I-QL is h-u-g-e spreadsheet template which requires a 256K (minimum) memory expansion. From what I can tell, TAX-I-QL is designed/suitable for the CPA who need to "link" (virtually) ALL of the IRS forms.

Because "individuals" certainly comprise the majority of the users, the extent of the template will appear to be overkill; with, the result being a minor penalty of a seemingly long calculation time. Time is very subjective, and you will find that it is still faster than doing calculations on the forms in tandem with an adding machine or calculator.

Unfortunately, nothing on/for the QL appears to be perfect; and, TAX-I-QL is no exception. But, TAX-I-QL is accessible for modification (but, use caution; and, ALWAYS double check your calculations regardless of the spreadsheet and/or template your are using).

Any "adjustments" to schedules are limited only to your ability to write/modify an Abacus formula.

A minor TAX-I-QL "flaw" is that the template presumes that the data taken from your W-2 forms for "state tax" is an absolute [i.e., that you will NOT deduct more-or-less than the amount(s) withheld]; and, this is reflected in the value transferred to SCHEDULE A.

For example, Illinois residents pay a percentage of the ADJUSTED GROSS INCOME, less two-times (2x) the local real estate tax paid and a "standard" deduction similar to the Federal deduction. As I am only dealing with one state, I can input a simple, linked formula in the appropriate cell in SCHEDULE A:

```
(G100 - (2*N13) - 2000) * 0.03
```

'G100' is the cell containing

the "adjusted gross income" (on the template I have); 'N13' is the cell containing the "real estate tax" paid; '2000' is the "deduction" for myself and my wife [this could have been input as "G74 * 1000" (exemptions x deduction)]; and '0.03' is the current "tax rate" in Illinois.

Obviously (?!), the state income tax rate varies from state to state; and/but, an ASKN/ASKT macro might be incorporated to better quantify the state tax value on SCHEDULE A if you are preparing tax returns from varying states.

Because TAX-I-PC is accessible, its one other "flaw" is that you may eventually decide that you only have to buy a copy for one year; and then, modify it for subsequent years.

HHMmm. Definitely worth buying at least one time. TAX-I-QL ($24.95) is available from:

EMSOFT
P.O. Box 8763
Boston, MA 02114-8763

EMSOFT accepts VISA and MasterCard (w/ surcharge).

HAPPY TRAILS, AND COMPUTING,
TO YOU ...

ADS

To put an AD in the BBS and newsletter, upload a file with the filename.filetype:

TSNUGxxx.ADS

where xxx is your initials.

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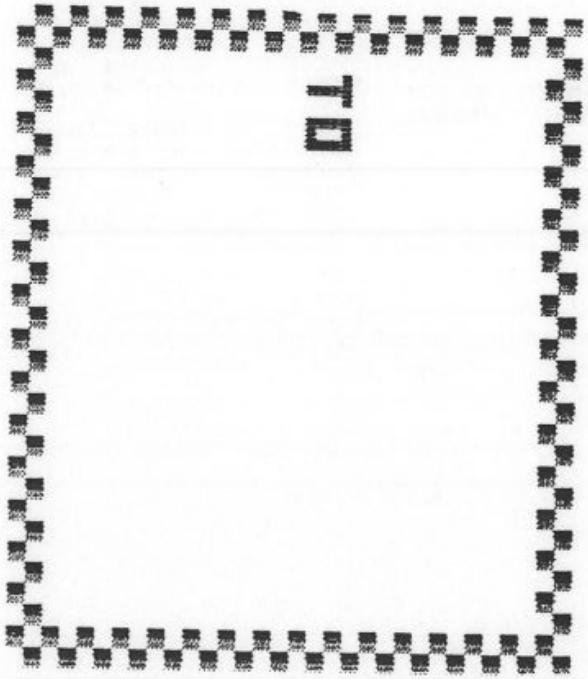
CALL TONY SOKOL H708-428-4058

ALL MADE ON ZX81/TIMEX 1000

I will send (FREE) to you the PROGRAM and DATA of the picture(s) seen in this issue if you send me the name of the character depicted. See also bottom of page 2.



ZX NO. 3 81

10 YEARS LATER

ALL :

THE NEW NEWSLETTER FOR THE SINCLAIR ZX81 / TIMEX 1000.

ALL YOU SEE, AND WILL SEE, HAS BEEN CREATED WITH, AND ONLY, A ZX81, A 16K RAMPACK AND A TIMEX 2040 PRINTER.

I QUIT!

Yes! I quit! After only three issues I quit answering letters individualy. The amount received now forbids such practice. From now on answers will be part of ZX-91. The answers will then benefit all readers and I will not have to repeat myself over and over.

This month's title must have shaken you. Devilish am I not? But trustworthy, ZX-91 will come out every month for at least a year as stated in the first issue.

IF YOU WISH TO RECEIVE A PRINT-OUT, A CASSETTE, AN INFORMATION, A REPLY OR THE NEXT MONTH ISSUE OF THIS NEWSLETTER SEND A SELF-ADDRESSED ENVELOPE TO:

ANDRE BAUNE
304 SCOTT,
CHATEAUGUAY, QUEBEC
CANADA J6J 4H5

kNEE·USE·N·N·SIRS

Can you read the above title? When I started ZX-91, I had piled up topics, articles, print-out and pictures to fill the pages of this newsletter for at least a year. But I soon realized I had forgotten something which would make this newsletter livelier. And if you read carefully the above title you will find out what it is all about.

GOOD SERVICE:

I received what I ordered in reasonnable time limits for the price marked from RMG Entreprises, from John McMichael and from EMSoft. Future buyers look them up in the SUPPORTERS' list.

Thank you Peter for your note and the subsequent letter. Proper actions have been taken. Your bank should have contacted you by now.

If any of you have any problem with cashing my checks, please let me know your bank manager's name, the bank's address and phone number. I will immediatly take the proper actions. I am paying my bank for this service. They deliver.

OLYMPIC'S GOLD MEDAL:

Did you buy COMPUTER MONTHLY of March? Have you read the chapter about ZX-91 in the T/S SURVIVAL column?

To appear in a prestigious international magazine is a G O L D M E D A L !

A gold medal that WE won, US ALL, vendors, clubs' leaders, programmers, newsletters' editors, users and beleivers in the ZX81/Timex 1000.

No words could express my emotion and my gratitude to Bill Ferrebee of Mountaineer Software and to the editor(s) of Computer Monthly. I am wordless!

UN PEU DE FRANCAIS:

Merci a Mike Felerski pour sa lettre. If you tried to startle me, you did! Do not forget to reply to me about your journal.

TO PAGE 4

FROM PAGE 3...

S.A.S.E. #1:

I take this space to thank you all who sent me a self-addressed envelope. But please if you are not from Canada do not affix an American stamp on the envelope because I am mailing from Canada.

S.A.S.E. #2:

Thank you all who finacially helped me with the cost of sending them back their next issue of ZX-91. It helped me greatly. Needless to say that my budget is busted. But I am hopefull it will be within reasonable limits in the forthcoming months.

SUPER THANKS:

To my great motivator Donald S. Lambert of ZXir 0Live Alive, to Arnold Nieuwenhoff of Sutton MA and to David G. Leech of Byte-Back.

You gentlemen have helped me beyond expectations. I'll have to do something in return.

BAD NEWS:

My letters to WORLDWIDE SOFTWARE of England and to INSPEC LTD of Ireland were returned with mention GONE AWAY. If you have the new address of these two vendors, please send them to me.

ELECTION TIME:

Malcolm Post has replaced Derryck Turner at the helm of SEATUG. Best of luck Malcolm!

FACTS:

ZX-91 is a monthly newsletter primarily devoted to the ZX81 and the Timex 1000/1500. It is sent free to any one who will send me a request in a self-addressed envelope. Clubs and/or newsletter's editors who exchange newsletters are exempted of the preceding procedures. Vendors (I used the term vendors to conform myself to the remark of Nazir Pashtoon, president of CATUG.) are requested to drop me a word (or a postcard or a flyer) every four months (or less) in order for me to keep an updated SUPPORTERS' list.

--> PAGE 5

You like this picture? See page 1 to get it FREE on your own screen and printer.

FROM PAGE 4...

FRENCH QUEBECER SLIP:

Computer Classics is from CABOOL MO. In issue 2 I wrote the name with a french sound. Sorry Dan.

MORE AND MORE:

I received a 3 pages letter from Gil Parrish a letter full of subjects, questions and grievances. I will try to answer them here and now. And as incredible as it may be I only have good news.

From Hacker Electronics (the 1$ and 2$ computers) you have received a refund. That is good. And there is still a possibility that they might have more computers for you later.

Now! What about trying to get some computers from other sources. Contact the dealers listed in the SUPPORTERS' list. Some of them must have some 'returns' or some second hand computers.

Get in touch with groups like ISTUG or SEATUG. They have sales or auctions where people from out of town can buy or bid.

--> PAGE 6

FROM PAGE 5...

Visit the fleamarkets and garage sales, you might find some computers there. I know. I did find some.

About your newer TI-99 keyboard problem, I do not have a final answer yet. I will try to get such a keyboard and see if it can be wired up. Or maybe some readers already have an answer? I know that the older model works fine because I wired one. The only thing to report is that the ENTER key is up one row. I linked the keyboard to the circuit board with ribbon cable. It makes a neat job. More about keyboards next month.

About software, You say software for the ZX81/timex 1000 is hard to get. Well! I sent for catalogs from the dealers listed herein and I received impressive lists of software available and at cheap prices. I have joined clubs and they have impressive lists of public domain software. Let yourself be tempted! Go for it! It's there!

Also for the NEWER than new, in the comming months I will try to put on the market some of the programs I have created. You have seen the quality of this newsletter and the graphics. You can expect the same from my programs.

Yes! I do have a library of programs. The shorter ones are becoming available as print-out in this newsletter. For the longer public domain programs I don't have a satisfactory solution yet.

Pfeew! I hope I covered up everything. Surely mishaps will happen but let's look on the bright side! let's find corrective measures! Let's help each other!

ONE LAST:

Phil of Sunset Electronics is looking for an EPROM BURNER. You have one? Look at his address in the SUPPORTERS' list.

ALSO:

Welcome to QZX, the amateur radio club using Sinclair/Timex computers who is still going since Marty Irons put out the first copy in the early days of the ZX80.

A great welcome also to the Vashon Island Sinclair Timex Association.

ANDRE***

ZX IS #1

Yes! The ZX81 (or Timex 1000) is the best computer to learn about computers and about programming in BASIC or in machine code. And we shall learn why in the following chapters.

To qualify as proper material, any book, software or computer must meet certain requirements which are: neatness (or clarity), simplicity and feedback.

NEATNESS

It is easy to understand why for a beginner it is important to clearly see and to be able to identify what is shown to him. Oftenly it is regarded as a drawback for the ZX to accept only one instruction per line. But for the learner it is an advantage. The program line remains neat and short, not complicated by added instructions. In other words, easier to read and to understand by the beginner.

Another neatness of the ZX is it's way of listing programs on screen, one page at a time. You don't have to figure out the lenght of the following lines in order to indicate the line at which to stop. You simply type LIST + line number. The computer then prints out one screen page starting at the line called and stops. It's clear! It's neat! It makes the screen easy to read for the learner.

Now, what about the automatic spaces on each side of the keywords? That is neatness! The keywords seen outstanding are easier to note and to remember. It makes the screen much clearer to read.

All the mathematical functions are spelled on screen (SQR, PI), not represented by a symbol. The beginner has already other symbols to learn, why add mathemathical ones? He is learning computing not math. So being able to read the name on screen is an advantage for the beginner.

--> PAGE 8

CRYPTOGRAM

BU FRZYZ CQS XBYM IUBQX

DHPEIFZY CPHQX IU?

FROM PAGE 7...

Here is a review of the four reasons why the ZX is the best in neatness. 1) One instruction per line. 2) Listing only one page at a time. 3) Automatic spacing for the keywords. 4) Spelling of the math functions.

These features keep the screen neater and from there easier to read and to understand by the beginner.

SIMPLICITY

The simple format of the error message: Two numbers separated by a slash. What can be simplier? The first number gives you the error code and the second one is the line number in which the error was detected. No fancy nor confusing sentences. The information is kept simple but complete.

The second (simple) feature is the limited amount of commands and/or functions to learn before you can actually make a running program. All the commands necessary to make a program are there. The extra unnecessary one are not there to confuse you. This is simplicity.

The third feature of simplicity of the ZX is the limited amount of pixels to be managed on screen: 64X44. Compared to the 256X192 or 640X200 or more. A beginner does not need all that complexity to learn how to make a picture. It impedes his learning or worst it will discourage him. This is another reason why the ZX is the best, it has a small amount of pixels to manipulate and you still can make fantastic pictures. Simplicity equals easy learning.

Rapidly we will review the three simplicities of the ZX: 1) The error messages format. 2) All and only the necessary commands. 3) The small amount of pixels for making pictures.

FEEDBACK

The feedback is surely the most important quality in the learning process: It is the recognition and the evaluation of what the student has done. It allows the student to bolster his self-esteem when he responds properly or it should give him hints or help on how to correct his mistakes.

--> PAGE 9

FROM PAGE 8...

When an error is detected the ZX will report an error message indicating the type of error and the line in which it was detected. This informative feedback is very usefull for the learner, it is a clear indication of what to look for and where to look. In short it gives him the WHAT and WHERE.

The second feedback is the syntax error cursor. This is a unique feature of the ZX which puts him in a class by itself. The computer will not accecpt (ENTER) an incorrectly built instruction. More, it will also place an inverse S after the error. The ZX is almost the perfect teacher indicating mistakes before they bug down your program.

And finally the slowness of the ZX. Yes! The most cited fault is the ZX best advantage in the learning process. Are you going to correct a deficient way of programming when the speed of the execution of the program is not affected? Are going to force yourself to learn a better method to make faster animation on screen when there is no noticeable difference on screen? But with the ZX the execution of a program will be slower. The feedback is right there in front of your eyes. So slow that you can see it. Learning and using the best techniques of programming become an easy task because the results are noticeable.

Here is a review of the last chapter about feedback: 1) The errors report provides a simple and efficient feedback. 2) The syntax error cursor feeds us back with The inverse S pointing to a faulty instruction. 3) The noticeable difference in the speed of execution with or without the best techniques of programmation.

Now you know why our computer is the number one of all the computers for learning computing. If anybody challenges you about this fact, you are now well prepared to defend our computer.

A small car or a jumbo jet will take you from New York to Los Angeles but 99% of the people can learn to drive a small car. I do not know how many will learn how to fly a jumbo jet? Think about it. For learning, the ZX81/Timex 1000 is #1.

ANDRE ***

SINCLAIR/TIMEX' SUPPORTERS

U S E R S G R O U P S

C A T U G
Chicago Area Timex Users Group,
c/o Al Feng,
15 Wake Robin Ct,
Woodridge, IL 60517-1751

I S T U G
Indiana Sinclair Timex Users Group,
c/o Frank and Carol Davis,
513 E. Main St.,
Peru, IN 46970

L I S T U G
Long Island Sinclair Timex Users Group
c/o Harvey Rait,
5 Peri Ln.,
Valley Stream, NY 11581

S E A T U G
SEatle Area Timex Users Group,
c/o Malcolm Post,
3323 Frater Ave. S.W.,
Seatle, WA 98116-3112

S L I X
SinCLair Information eXchange,
c/o William W. Miller,
6675 Clifford Dr.,
Cupertino, CA 95014-4530

T / S N U G
Timex Sinclair NorthAmerican Users Groups
c/o Donald S. Lambert,
1301 Kiblinger Pl.,
Auburn, IN 46706

T G C U G
The Greater Cleveland Users Group
615 School Ave.
Cuyahoga, OH 44221

T T S U G
Toronto Timex Sinclair Users Group,
14 Richome Court.,
Scarborough, Ontario,
CANADA M1K 2Y1

V I S T A
Vashon Island Sinclair Timex Association,
BOX 199,
Vashon, WA 98070

ZX Users Group of New York,
BOX 560 Wall ST.,
New York, NY 10005

--→ PAGE 11

FROM PAGE 10...

MAGAZINES AND NEWSLETTERS

Computer Monthly,
BOX 7062,
Atlanta, GA 30357-0062

FDD Newsletter,
1274 49 St. #821
Brooklyn, NY 11219-3091

Free Software Foundation,
675 Masschusetts Ave.,
Cambridge, MA 02139

Update Magazine,
BOX 1095,
Peru, IN 46970

0 Z X
2025 O'Donnell Dr.
Las Cruces, NM 88001

D E A L E R S

Byte-Back inc.,
BOX 112, 536 Long Terrace.
Leesville, SC 29070

Computer Classics REPAIR
RT 1, BOX 117,
Cabool, MO 65689

EMSoft,
BOX 8763,
Boston, MA 02114-8763

John McMichael,
1710 Palmer Dr.,
Laramie, WY 82070

Mechanical Affinity
513 E. Main St.,
Peru, IN 46970

Mountainer Software,
749 Hill St. #9,
Parkersburg, WV 26104

RMG Entreprises, (4$ catalog)
1419 1/2 7th St.,
Oregon City, OR 97045

Sunset Electronics,
2254 Taraval st.,
San Francisco, CA 94116

The John Oliger Co.,
11601 Whidbey DR.,
Cumberland, IN 46229

--→ PAGE 12

FROM PAGE 11...

William J. Volk,
6015 Carter Ave,.
Baltimore, MD 21214

To receive information from the people listed above please send them a self-addressed and stamped envelope (SASE).

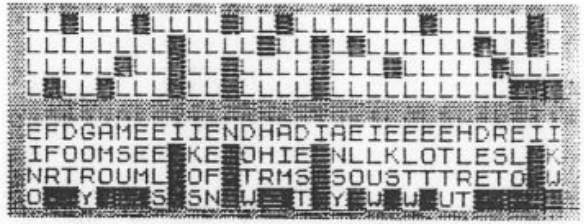
To get a catalog from a dealer add one dollar (1$) to your letter.

As more clubs, dealers, newsletters and magazines will contact the ZX-91 newsletter, I will include them in this SUPPORTERS' list.

It is a free service to them and a great source of information to the readers.

Spread ZX-91 around, show it to friends, use it or part of it and in doing so, because you are part of it, YOU and me, we will reach more Sinclair/Timex users.

GAMEWORD: ANDRE###



N E X T M O N T H

I know I'm late and there is no print-out. But look at the lenght and the quality of the SUPPORTERS' list, the articles and the graphics of this month! Next issue will have print(s)-out.

--ACHTUNG--

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