Still Alive With Sir Clive!

ZXir QLive Alive!

The Timex/Sinclair NorthAmerican User Groups Newsletter

Volume 7 No. 2 Summer '97

Chairman Donald S. Lambert Auburn, IN

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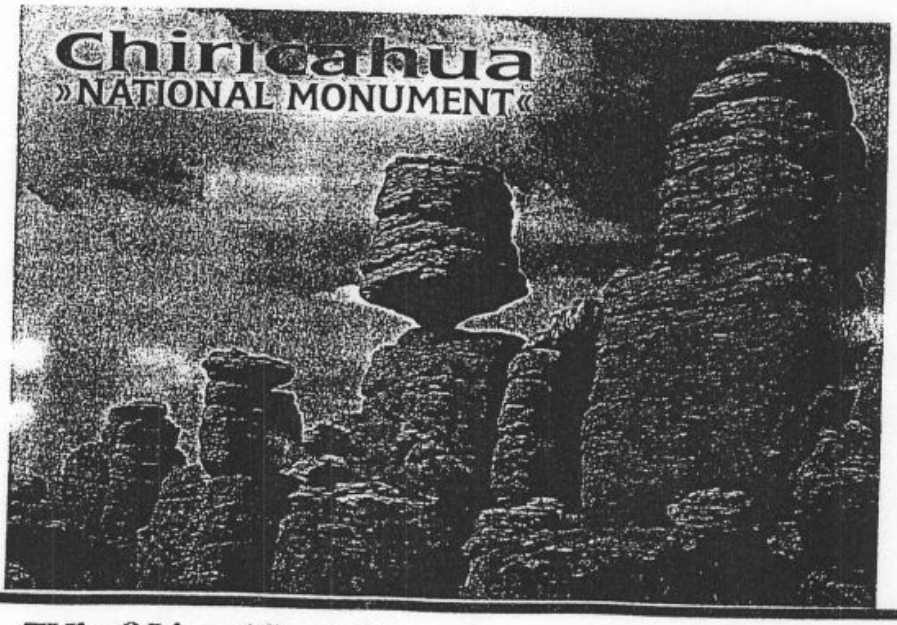

They said;

It couldn't be done

T/SNUG Information

We wish to support the following platforms : ZX-80/81, TS-1000, Spectrum, TS-2068, Z88 and QL. If you have any questions about any of these fine Sinclairs, contact the:

Chairman

Chief Motivator
Donald S. Lambert (ISTUG)

Vice-Chairmen

Tape & JLO PD Library
D. G. Smith
415 Stone St.
Johnstown, PA 15906
814 535-6998

Z88 Library
Dave Bennett (HATSUG)
1275 Timber View Dr.
Mechanicsburg, PA 17055-9146
717 732-4374

ZX-81 PD Tape Library
Ed Snow
2136 Churchill Downs Cir.
Orlando, FL 32825
407 380-5124

RMG Enterprises
Rod Gowen (CCATS)
14784 S. Quail Grove Cir.
Oregon City, OR 97045
503 655-7484 FAX 503 655-4116

TS-2068
Rod Humphreys (VSUG)
10984 Collins Pl.
Delta, BC V4C 7E6 Canada
604 583-2819

QL PD Library
John Donaldson (CATUG)
835 Foxwood Cir.
Geneva, IL 60134-1631
708 232-6147

AERCO & Z80 Emulator
Keith Watson
41634 Amberly Dr.
Mt. Clemens, MI 48038

BBS ---==GATOR==---
Bob Swoger (CATUG) .
613 Parkside Cir.
Streamwood, IL 60107-1647
630 837-7957 Work 847 576-8068

Any of the above can also be reached by e-mail through the **MMCC BBS 847 632-5558**

ZXir QLive ALive!

Is the newsletter of T/SNUG, the Timex/Sinclair North American User Groups, providing news and software support to the T/S community in a VOLUME of four newsletters per year; beginning with the Spring (March) issue.

T/SNUG's main goal is to preserve and encourage the use of Sinclair computers by providing an open forum for the exchange of knowledge, building and maintaining of software libraries. Providing vendors, repair service and members with free ad space.

It is the user groups and individual subscribers, rather than the vendors, that provide the pecuniary support for this newsletter. Vendors and developers receive this newsletter free of charge, though contribution from vendors and user groups is gratefully accepted. Please support our vendors and service providers whenever possible.

If you have a problem or you have solved a problem, please share it with the rest of us. No problem will be considered unimportant.

Editor/Treasurer
LarKen PD Library

You can keep T/SNUG alive by an annual contribution of $12 for one VOLUME made payable to Abed Kahale. Send check to:-

ABED KAHALE
3343 S FLAT ROCK CT
SIERRA VISTA AZ 85635-6874
520 378-3424

Back copies are available for $0.75 each postpaid.

Trea$ury Note$

As of June 3, 1997, we have a balance of $1001.29

Article Contributions

Send in your articles by tape or disk and your inputs to:—

DONALD LAMBERT
1301 KIBLINGER PL
AUBURN IN 46706-3010
Phone 219 925-1372

By hardcopy, MSDOS or modem (.3-28.8) to:

Abed Kahale
E-mail: AKahale@compuserve.com

Welcome

Dennis Donahue
Don Walterman
John Impellizzeri

GATOR's
TWISTED PAIR

To better inform the Sinclair Community, four 24-hour a day BBSs are now provided to serve you. You are encouraged to exchange mail and use the files sections of these boards. Bulletins and ads are available to all.

Q-Box BBS **810 254-9878**
Utica, Michigan

SCC Sever **Jose Moreno**
http://members.tripod.com/~helpme/

SOL BBS **520 882-0388**
Tucson, Arizona

MMCC BBS **847 632-5558**
Arlington Heights, Illinois

If you know the Internet E-Mail address of a Sinclair user, but do not have access to Internet, simply address your E-Mail to GATOR Sinclair on the 24-hour **MMCC BBS** and include the name and E-Mail address of the user you wish to reach. Then check the MMCC BBS from time to time if you expect a reply.

We encourage you to exchange mail and contribute to the UPLOAD section. Call and ***register*** using your first, last name and phone number along with a password you won't forget. ***Write It Down!*** Do not try to do anything else at this time.

When you call-in the next time, you will have Level 5 security and be able to enjoy full user privileges. The BBS has smaller sections called conferences. Select "J " for "Join a Conference". Select "TIMEX" to get into the Sinclair Section. The mail you then read will only be from other T/S users. Use extension .ART for articles, .ADS for ads and .NWS for news when UPLOADing.

For help, contact the SYSOP, Bob Swoger, by leaving a message, mail, E-Mail or phone.
Bob_ Swoger-CENG108@email.mot.com

Input/Output

by Abed Kahale

Bulletin - May 7, 1997

By all accounts of those present, the 1997 North American QL Show was a success! Probably the best one yet.

It was good to see some old friends again and it was also good to see some new faces and to be able to put those faces to names. The location was good with easy access to the hotel and show site and plenty of good restaurants nearby including the one that the show was held at.

The Aurora card for the QL seems to have been a big hit as it sold without even having a demo! The system intended for the demo impressed someone enough to offer Frank Davis of FWD Computing an offer he couldn't refuse! From what I heard and saw, Aurora sold quite well anyway.

European dealers present were: Stuart Honeyball of Miracle Systems, Roy Wood of QBranch, and Jochen Merz Software. There were a few other European visitors who came just for the show. Stuart was there to support Miracle's products now being sold by Qbranch. Roy had a number of programs available including ProWESS and the new version of LineDesign. Jochen was busy with updates including impressive new versions of QD and QMenu along with sales and renewals of QL Today.

American dealers present were: Frank and Carol Davis of FWD Computing, Paul Holmgren, NESQLUG, and QBox-USA (we had a small number of Quanta items for sale). FWD had Aurora cards for sale along with a wide range of software for the QL. They also had lots of Z88 items. Paul had lots of older and used goodies for sale and seemed to have quite a popular table. NESQLUG was selling memberships and renewals along with Wood and Wind Computing's products.

The latest issue of QL Today debuted at the show and a quick look reveals that this magazine just keeps getting better. There is also news of a number of new items planned or in progress for the QL.

All in all, the 1997 show was great, there was lots of enthusiasm and optimism and it's quite possible that there will be a show at the same site in 1998. Stay in touch!

QBox

AC Adapter for the Z88

I had several 110 volt AC to 6 volt DC mains adapters so I checked them out. Two had just less then 6 volts DC while marked 6 VDC and one had an even 16 VDC. The latter was a TS-2020 mains adapter. The plug fitted, polarity was correct and the amperage (*current*) was high enough so I tried it. Be forewarned, the voltage is too high since the screen did a funny thing and the Z88 ended up with a locked-up keyboard. A 7.2 volt battery pack is recommended so that 7.2 volts DC must be near the top limit of allowable voltage. The computer seems to be OK after a soft reset. 0/0

Donald S. Lambert

The power supply must not not exceed 7.2 VDC.

Well, Abed, I'm going to SEND this to you **line by line !!!**

Regarding Gil Parrish's excellent article on LKDOS, let me mention another "basic disk handling function," by citing the FORMAT key, below the key for "8".
FORMAT is handy, since it formats a disk, as follows :

Track/Side 000/002
Track/Side 003/002
Track/Side 006/002
Track/Side 009/002
Track/Side 012/002
Track/Side 015/002
Track/Side 018/002
Track/Side 021/002
Track/Side 024/002

according as the number n of banks be 0, 1, 2, 3, 4, 5, 6, 7, or 8, respectively, in the command :

FORMAT "n",

This is **very** useful, when backing up/restoring RAMDISK!

We have been using DFM, JFORM, Omnibus 3.03, Omnibus with pull/down menus, LogiCall, and DUS for years, due to their ready access to LarKen Disk Utilities. DFM is by far the most convenient little set of disk file managers, whereas OMNIBUS and DUShave many unique routines, amidst their galaxies of capabilities! Confining oneself to LogiCall would be like telecommunicating in BBS mode ONLY, when a lot of things are better done in

TERMINAL mode.

Those of us, who don't mind preceding all disk operations with "RANDOMIZE 100", realize that Larry implemented LKDOS by way of an interrupt at RAM location 100 (and 102 for that matter!!) That is **very useful information**, and it gets reinforced with every CALL to disk operations !

In conclusion, let me state my informed preference for a screen with black INK (0), white PAPER (7), and cyan BORDER (5) .

KEEP ON TIMEX'n

PS. LKDOS might **not** be such a good choice for new 2068 owners, as there has been no OEM support for years. But, JLODOS is **both** compatible with LKDOS and supported by John.

Dear Abed :

Please tell Don, that Eric Johnson has twenty 2068's and Frank Davis has "200"of them. So, there should be **plenty** of computers for him to finish his newsletter project.

In the Want Ads, Doug Wagoner is looking for terminal program(s) to run 2050 modem on TS-1000 and TS-2068 in cassette format.

Well, RMG Enterprises sells 'em, so I would just give Rod Gowan a call at 503-655-7484.

Your message was forwarded to Doug.

Right now, I'm looking at a cassette with MTERM I, on one side for TIMEX models 1000 & 1500, on the other side for Timex model 2068. Given thirty more minutes, I'm sure to find MTERM II in the same format, and MTERM II is better than MTERM II

The Internet address for Jose Moreno is given as < http://members.tripod.com/~helpme/ >

Well, somebody better help all us users of the 2068 out here, because we don't have a TILDE (~) on our keyboard! And, we don't ALL have an APPOLE, which I am now using to write this letter to ZQA Magazine. On my local Internet service, we can all substitute the following three characters in a row for ~ ...%7E...

Then, Jose's address appears as http://members.tripod.com/%7Ehelpme?

So, KEEP ON TIMEX'n !!!!!!!!!!!!! Dave

Here is a coy of the message, I sent to Gil Parish....

Yes, I have Superdriver : printer utilities by Jack Dohany. They are distributed by RMG Enterprises. So, Gil, I would call Rod Gowan at 503-655-7484 to request a copy.

Kind of messy, but KEEP ON TIMEX'n

David Lassov
2590 N JORDAN DR
TUCSON AZ 85745-1132
emanon@azstarnet.com

Dear Abed,

Thanks for this info; but, since David has just pointed me toward Rod Gowan, I apparently don't need David's address!

Still, your message was helpful in explaining what's David's message was. I asked the question some time back, and I hadn't seen the newsletter yet, so the name "Superdriver" didn't mean anything to me off-hand today. Since I work with so many older computers, I wasn't even thinking Timex/Sinclair until I saw your message. Now I at least know what he was trying to communicate!

I only just got the AERCO interface fired up a few days ago; I had some initial panic that it didn't work. Once I attached the LarKen disk interface, then the AERCO printer interface, and finally the 2040 printer interface (since you can have both a large printer and a 2040 on-line at the same time), I think there was such downward pressure back there that the flex prevented the printer interface from working. Once I provided some support, it works like a champ.

Thanks for your help.

Gil Parrish
107765.1161@compuserve.com

Dear Abed,

I got the ZQA! Earlier in the week - Thanks. ...

I was glad to see the information about the AURORA QL-replacement motherboard printed in the ZQA! Even if it is something that I probably won't be getting. I keep hoping for some information or feedback *from* Bill Cable about the QPC emulator - either directly, or through the pages of ZQA! and/or NESQLUG News (or any of the newsletters that Bob has not sent lately).

My disappointment with SMSQ's display would be increasing with the passage of time if it hadn't occurred to me to max out the vertical adjustment on the 15" vertical monochrome VGA monitor that I picked up some time ago (what was I thinking?...) even so, lot of *black* space surrounds the SMSQ display image on all sides. The monitor has a toggle so the normal DOS display has the equivalent of about a 12" monitor.

I would guess that using the 15" *vertical* monitor is closer to using a *normal* 20" monitor as far as the height is about the SMSQ text, when the vertical is maxed out; and, the resultant height is about the same as DOS text on a 14" monitor, but the width of the SMSQ generated characters on the 15" vertical monitor is only about ¾ ths the normal aspect ratio.

I know that I do not have plans to get a 20" monitor in order to have a *normal* sized display; so my monochrome kluge will have to do for now.

I guess too many QDOS/SMSQ users, in general are too passive (i.e. Grateful for getting anything new) to complain. Your Pal,

Al Feng
Albuquerque, NM

From: Walter M Swentko MD
To: akahale@compuserve.com
Hello,

I saw reference to this magazine when browsing for info on Timex-Sinclair and similar computers. Jose Moreno suggested I contact you for more info on the magazine. I'm interested.

Wally Swentko MD

Minneapolis, MN
wswentko@maroon.tc.umn.edu

Please provide your snail-mail address and I will mail you a copy. Copy was sent.

Sender: rlg@world.std.com
Date: Tue, 25 Mar 1997
From: Robert L Gallaghar <rlg@world.std.com>
To: Cable/Boyle <cable@cyberportal.net>
Cc: Doug Laverne <dlaverne@use.usit.net>, Don Walterman <ad551@detroit.freenet.org>, Bob Dyl <iqlr@nccnet.com>, Andy Hradesky <72267.3572 @compuserve.com>, Abed Kahale <103457.2440 @compuserve.com>
Subject: Re: QL Show Coming Up!
In-Reply-To: <199703240209.VAA28238@cyberport.cyberportal.net>

To whom it may concern - I received the above message, along with one previous to it, to my e-mail address. Mr. Gilbert must have had this address in the past and since changed it. Please correct your address book accordingly.

rlg (Robert L Gallaghar)

From: Cable/Boyle:

> 1997 North American QL Show

Below is the latest list of people expected at the show. More people are notifying me every day so it will definitly be as large a show as we have had in the past few years. There is one area that I am a little unsure about and I want to ask for any suggestions or help that any of you might have. Last year we had a special machine that Al Boehm was able to borrow for us that projected the computer display to a large screen. This year that machine will not be available. I think it is important to be able to display the demonstrations as well as possbile so I am considering any suggestions that anyone has. The best altenative that I can come up with is a device called a PC-TO-TV Video converter. There are many types and they range in price from $80 to $300. We may be able to rent a large screen TV for the show and then with one of these devices we could have a screen that everyone could see. Has anyone had any experience with this device? Does anyone have one they could bring? Could anyopne recommend a brand or place to buy one? Thanks. I have also promised Jochen that we would provide a SVGA Monitor for him to use. I will bring my PC with monitor but it would be good to have another monitor. Is there anyone who can bring a an extra SVGA monitor? Thanks for help and suggestions.

People Expected At The Bedford Show May 3rd

As of April 7:-

Al & Dorothy Boehm	Alabama, USA
Dietrich & Inge Buder	Germany
Bill Cable & Mary Boyle	New Hampshire, USA
Bob Gilder	New York, USA
James Hunkins	California, USA
Dave Bennett	Pennsylvania, USA
John Impellizzeri	Minnesota, USA
Joe LaPunzina	New York, USA
Manuel A Quintero	Virginia, USA
Harvey Rait	New York, USA
Harold Jones	Pennsylvania, USA
Herb L Schaaf	Deleware, USA
Don Walterman	Michigan, USA
Ruth Fegley	Maryland, USA
Doug Gillespie	Ohio, USA
Paul Holmgren	Indiana, USA
Doug LaVerne	Tennssee, USA
Bob Malloy	New York, USA
Duane Parker	Maryland, USA
John Wiggens	Delaware, USA
Frank Davis of FWD Computing	USA
Stuart Honeyball of Miracle Systems	England
Jochen Merz of Jochen Merz Software	Germany

Dear Abed,

This is really interesting. We are trying to learn, what is the best way to send ASCII files over the Internet. First, we are going to spare you and others the waste of time, reading our failures, *by mailing the e-mail to ourselves first !!*

Second, it appears true, that MaxCom has difficulty, SENDing Word Processor CODES, either MSCRIPT or AppleWorks in my case !

Third, we have to practice the use of Bill Jones' paragraph file routine, for sending messages without any punctuation, save perhaps five carriage returns and five line feeds !! So,

One thing, isolated characters appear to be **dropped** by MaxCom, so hopefully you can fill in the "typos" and missing.

KEEP ON TIMEX'n

Did you consider that the Internet is a 7-bit system and MaxCom is an 8-bit system? Like those characters dropped by MaxCom.

Also, you cannot send binary files (or pictures) over the Internet via E-mail. You must first convert the binary files to ASCII. This process is called ***encoding.*** *You can then send the encoded file over the Internet using SEND file. The receiver then will have to* ***decode*** *the file. The most common Internet file types are* ***.MME*** *(MIME text) and* ***UUencoded,*** *others are .XX and BinHex. Of course both the sender and receiver must have the programs to do the encoding and decoding. I use a* ***shareware*** *program - XferPro - available from the Internet as XFERP111.ZIP from SabaSoft Inc.*

http://www.sabasoft.com

Thanks for the info on the Internet and 7-bit systems. Interesting, but I don't know how we can use that to our advantage, OR how to avoid any possible disadvantages. So, can you see any problems, which such formats might cause upon conflict? Dave

---

Dear Abed,

Just had my daughter read the Spring '97 ZQA! to me and I enjoyed it as always.

I noted that there is a mention of a FAX line for RMG somewhere in the issue. I no longer have the 655-4116 phone line. In an effort to lower my cash flow (out), I have

had to disconnect my second phone line. I will be, as soon as I can get it done, be putting the fax computer on-line on my 655-7484 number via a fax switch or a voice/fax/ modem. It may be a while. I will keep you posted.

I am pleased to note that there are a lot of folks out there who are still using and enjoying the TS computer line. I always enjoy the Input/Output column most of all.

I noted that someone (Gil Parrish?) was looking for a SuperDriver disk for an AERCO printer i/f. He should contact Jack Dohany, as it is his software. I can no longer make use of my 2068 as the size, resolution and color of the screen will not allow me to see what is going on. Otherwise, I could make him a copy of the SuperDriver disk for LarKen.

I want to let you know that Jose Moreno has put my price sheets and flyer pages on the Web. I do not know the address of the page; but I may make some sales from it.

I know you use an IBM clone so I am sending along a copy of the latest version of RMG UTS utility package. Take a look at it and see what you think. The README.1ST file will tell you what you need to know about to install and run it. It also tells you what the system requirements are to run it. If you do not want to try it, please pass it along to someone who may be using DOS and who may want an easier way to do things. It is very comprehensive. You may want to unpack the self-extracting file UTSPAVEXE and read the UTSMAN.DOC, the manual for the package. If you ever wanted to learn about batch programming, this program package could teach you some tricks.

Let me know what you think, in any case.

Anyone who has purchased a copy of UTS is eligible for a free update to the current version if they just send the original disk and a large SASE with $1 postage on it to RMG. The current version is 3.0d and bears very little resemblance to versions before 2.0a. ***Rod***

As I said in November, I am available to supply TS items and information as I can as long as folks need it and I can supply it. I enjoy hearing from TS users any time. Since my wife died I find it necessary to keep as busy as possible to keep from becoming depressed. It can get awfully lonely after 32 years of having one's helpmate close and then suddenly being without her.

PS. Abed, you might mention in the next issue of ZQA! that anyone who has purchased a copy of UTS is eligible for a free update to the current version if they just send the original disk and a large SASE with $1 postage on it to RMG. The current version is 3.0d and bears very little resemblance to versions before 2.0a.

Rod Gowen

RMG Enterprises
14784 S QUAIL GROVE CIR
OREGON CITY OR 97045-8844

Thank you for the disk Rod.

Perhaps you can help me find a user's manual for the following software:

MTERM Smart Terminal program version 1.00. Copyright 1983 by Micro-Systems software, Licensed to Westridge communications.

This software is on cassette tape, written for the Timex/Sinclair 2068 computer, controls the Westridge 2050 modem.

I have a vague recollection that an explanatory article was written by Barry Carter. There may have been an official user's manual years ago.

I am using this software to contact the portions of the Internet through Delphi Online Services.

Would appreciate any helpful information.

Seymour Miller
Forest Hills, NY
seymil@delphi.com

You are in luck, I do have both the Westridge and the Barry Carter manuals. I can make copies and mail them to you at cost.

If I send you an E-mail message, do I use the address < akahale@compuserve.com > ? I ask because I thought Compuserve usernames were composed of numbers only.

Yes, this is my address, Compuserve finally granted us, users, a name instead of a number. The number < 103457,2440 > still works though, I am still a number to them.

Printed Circuit Board Development Program

WIDJUP CAD#3

For the TS-2068

"It lets ambitious people create their own electronic hardware without demanding access to industrial facilities or photo laboratories."

By the late William J. Pedersen

Now available from ZQA! Library courtesy of

Frank Davis

FW Computing

3 LKDOS Disks

A master program disk, 2 image disks and a manual.

For 9-pin Epson printers or equivalent.

Copies available at cost from the Editor.

Also received 1987/88 UPDATE! disks, Daisy, Smart Text, DOSDEX and disks by Bob Mitchell, Robert Hartung and the late Larry Crawford in LarKen format. Oliger and AERCO FD-68 disk formats were forwarded to Don Lambert

Looks like the response to a SinclairFEST in Elgin on

the 26-27 of April is cool to cold. No response from Wisconsin, 3 maybes from Michigan and 4 total from Chicago. This event is just too close to the Bedford date I guess.

Frank had pneumonia and was in the hospital. Today he wrote:

>Bob, the message I had from Don Walterman, John Impellizzeri, and Keith Watson was they were going to be there. I just got back from the Dayton Computerfest (saw D.G. smith there) and working real heard to get ready for the show at Bedford.

>I will be retired from the Postal service the end of October. Frank Davis --==GATOR==--

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From: Stuart Honeyball <miracle@mail.internexus.co.uk>
To: AKahale@compuserve.com
Subject: ZXir QLive Alive

Thanks very much for sending me the Volume 7, No. 1 (Spring 97) edition of your magazine. I have enjoyed browsing through it. I read out the jokes on pages 4 & 5 at our local QL user sub-group meeting last night and they went down a treat!

Again, thanks for sending it.

Stuart Honeyball
Bristol, UK

Abed,

There will be something Sinclair at the CoCoFest in Elgin on April 26 after all. At least Don Walterman and Keith Watson will come down and now John Impellezzari, it seems, may also get off of work and be able to come.

The purpose seems to be social now more than anything else, Keith says it is a time when he and Don can finally get together! I am canceling the Chicago club meeting and rescheduling it for April 26 at the Holidome, as Holiday Inn calls their place. So that is what is going on here and I wanted you to know about it. --==GATOR==-

---

To: Swoger-CENG108 Bob
From: rlg@hardlink.com Thu, Feb 27, 1997
Subject: Psion Exhange for PC and LogiCall

Where can I get this LogiCall for the PC I keep hearing about?

Also I would like to know more about Psion Exchange, I hear it's now public domain and I really would like a copy of it ...

I am also looking for the Artist 2 for TS-2068 and possibly Window Print ..

When I went to actually buy it, it had been sold out. There was an outfit in NJ I think that used to sell Timex stuff but it is been long gone.

Any of these I can buy used or even new? If I can't buy them, someone must know where I can get them. I may also want to get Tasword 3 or even Mscript on **cartridge** for TS-2068 ...

Things I've never heard of before, in other words, I didn't know they existed!

1.) Psion Exchange
2.) The Artist 2 for TS-2068
3.) Mscript on CARTRIDGE for TS-2068
4.) Tasword 3, TASWORD 2 for LogiCall is the last one I ever heard of! I wrote the Driver.

Mscript on cartridge, don't you have a disk drive system for the TS2068? a cartridge would get in the way. I can upload LogiCall to the Club BBS, 847-632-5558. It will be called LOGICALL.ZIP. You should also download UTILS.ZIP to use with it. I shall copy this to Abed Kahale to see if he ever heard of this stuff and maybe put a request in ZQA! to see if anyone has copies. Bye for now,

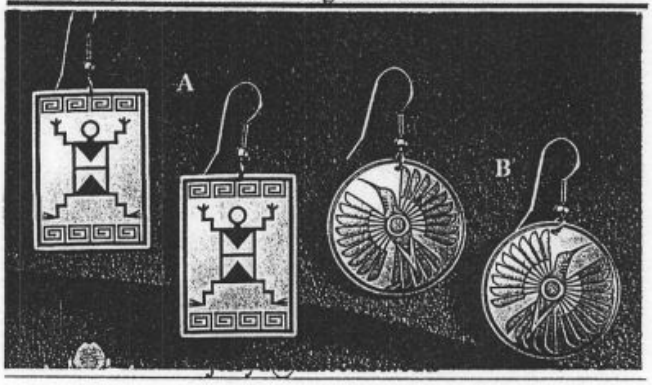
Robert. --==GATOR==--

From: davet@shootnsurf.co.uk (David Tubbs)

Me too, but now more engaged with the PC. I had a problem with a corrupt disk recently- Nothing in the PC environment would help to read it and edit the usable parts. So I hitched up a QL to my multisync monitor and merrily read sectors into RMA disk then into Chas Dillons EDITOR.

I really would like to know if anyone has an idea of how one can get the facility of Direct Sector Acsess on the PC, I have QuickBasic , Visual Basics 3&4. but I do no 'C' or Pascal at all.

Just in case you may be interested, I have put a fix for the PC's year 2000 date failings on the Internet.



I find your Input/Output very informative and good for a laugh. Jay Shepard
Ogden, IA

Thank you Jay, I try to diversify with some humor.

Greetings. Just one last message before the show. We now have 33 people signed up. Roy Wood of QBranch will also be coming. I have rented a 50" TV and will have a PC to Video converter for the demonstrations. It should work with QPC and the MAC emulator and the Aurora card. If you have a collection of various adaptors and connectors why not throw them in a tote bag. We are going to be far from any stores and if we find we need something it would be good if someone had it with them.

If you know of anyone who hasn't yet decided to come that might be interested, try one last time to persuade them. We want the vendors to get as much business as possible to keep things going.

A few people will arrive on Thursday evening. Most will arrive Friday afternoon and evening. If you aren't coming, wish us well and if you are, see you at the show.

Bill Cable
Cornish, NH

Wishing you all the luck.

Dear Abed,

Thanks for the disk with printer drivers. You definitely saved me the effort of looking for the disk with my Windows drivers on it.

I did receive copies of UPDATE! in the past, but I didn't remember that Larry Crawford had included the information that you sent. I also did not realize that he passed away.

I am sending along the few control codes that I know which are gleaned from the **printer.dat** file that came with the Psion suite for PCs. I used the **printer.dat** file for the Epson GQ-3500 and it seemed to work for the KX-P1124, so it is presumably the codes for an

Epson-compatible 24-pin printer.

Driver Name:	KX-P1124
Port:	Lpt1
Communications Mode:	Hardware
End Of Line Delay:	None
End Of Page Delay:	None
Per Character Delay:	None
Number Of Stop Bits:	One
Number Of Data Bits:	Eight
Parity:	None
Baud Rate:	9600
Lines Per Page:	66
Characters Per Line:	80
Continuous Forms:	Yes
Sheet feeder:	Yes
End Of Line Code:	CR, LF
Preamble Code:	None
Postamble Code:	None
Emphasize On Code:	Esc, 69
Emphasize Off Code:	Esc, 70
Underline On Code:	Esc,45,49
Underline Off Code:	Esc,45,48
Subscript On Code:	Esc,83,49
Subscript Off Code:	Esc,84
Superscript On Code:	E.sc,83,48
Superscript Off Code:	Esc,84
Italic On Code:	Esc,52
Italic Off Code:	Esc,53
Translate 1:	156,35

The **translate** code is one of ten possibles. For example, you can tell the printer to print one character for another (i.e., substitute the "@" sign for "©" sign). I think the above translate converts to BPS symbol to a "#" (I am presuming `CHR$ (35) == #` ; you can look it up if you are really curious).

While this information is probably too late for your day-to-day use, you now have the option of creating a new printer_driver for your 2068's word processor (Tasword?). I suppose that there are some other 2068 users who have a 24-pin printer; and so, this information might be generally useful.

Obviously, I don't know what the control codes are for changing the fonts via software (vs. the front control panel). That information (i.e., for changing from Courier to Script to PS, et cetera) should be in your manual.

Al Feng Albuquerque, NM

Dear Mr. Kahale,

I learned from RMG that you have a newsletter, could you give me some information. I am into the TS-1000.

Gerald Anson
Phoenix, AZ

Thank you for sending me the Autumn 1996 issue of ZXir QLive Alive! There seems to be much information in it about the 2068, Spectrum, and QL, but a paucity of information on the ZX81 or T/S1000.

Maybe these latter machines are too obsolete technologically speaking. Again, thank you.

jerrya@aztec.asu.edu

Dear Mr. Kahale,

I have a few questions. I have read a few references to something called **"TK82"** in T/S publications including a "Wanted" ad in ZQA! - Spring '96. What is it?

I have read that the Portuguese Timex Disk System uses a 17-pin connector to connect the controller to the interface. I have a ZX Microdrive and it uses a 17-pin connector. Are they compatible?

They are compatible with the use of a Twister Board (Spectrum buss adapter) that was developed by

Nazir Pashtoon
940 BEAU DR APT 204
DES PLAINES IL 60016-5876
847 439-1679

Can anyone give me any information about the Timex of Portugal products? I want details! At least a complete list if possible, and a dealer's address if possible.

Thank you,

LEON P HOWELL
6150 MONUMENT DR D
GRANTS PASS OR 97526

Nazir Pashtoon is the one person that can answer all your questions.

Here is a brief description: The Spectrum compatible Portuguese disk drive system was modified by Zebra Systems Inc. (defunct) for the US market and sold as Zebra FDD disk drive system. It was available in one then two disk drives. It has built-in 64K RAM, CP/M, TOS (Timex Operating System), power supply and controller. It uses Hitachi and/or Amstrad 3" diskettes.

Dear Don,

Sorry that it's been so long since I have contacted you. I was somewhat startled awhile back to see a house listed for sale in the local paper that I thought at first was yours. Upon checking your house number in the phone book, I found it was your neighbor across the street.

Among the reasons for my not writing anything about Sinclair computing for some time are (1) my main occupation with the jail and prison ministry seems to require more and more time (or I'm just getting slower!), (2) my eyesight is getting so it is harder to focus on a screen or printed matter, and (3) after having problems with my main QL ever since I got it that three different "fixers" failed to fix; a while back it started crashing almost immediately upon power-up. In consequence, I began using a PC for

most of my correspondence and record keeping.

That is not to say I was not in Sinclair mode much of the time, as I have the Psion Four for PC, Tom Wood's Findex and the Z80 Spectrum/TS-2068 emulator for PC. I use the Psion Abacus ptogram for all the financial records and budget reports for contributors to the jail and prison ministry, and I have setup Findex for addressing envelopes.

Robert Hartung

After sending you the previous letter about my experiences with my Trump Card QL and running QPC on a PC, I set up my ZIP drive to use it with QPC also as a removable-disk hard-drive. I also tried it with the Stacker 4.0 compression program and that works fine as well with QPC fdes on the ZIP drive.

I thought perhaps other QL users who are contemplating getting QPC might be interested in some of these things, so I did the enclosed re-write to clarify the last paragraph on page two, and also described my use of a ZIP drive. If you think Abed would want to make an article out of it, just let me know and I can send him either a hardcopy as the enclosed, or I can put it on a DOS disk as an ASCII file if he or you have DOS wordprocessing capabilities. With best regards,

Robert Hartung
Huntertown, IN

Yes I can read DOS ASCII disks, whatever is convenient for you.

Dear Don,

... I've been having fun with my TS-1500 with the full-sized keyboard. I previously wrote a brief text demo that runs on a 2K machine, and then I did a more elaborate version that requires a 16K machine. Since the demo takes a fixed amount of time to run, I got the idea of doing a multi-part demo for the 2K machine, using the elaborate version as the basis, with each part automatically loading and running the next part. And when I say "automatically", I mean the user doesn't touch the tape recorder after the initial LOAD; the unit is simply left on PLAY while all segments LOAD and RUN, one after another. The recorded programs are spread out on the tape such that when the program is ready to load the next segments the next segment is right there.

Of course, this has no particular practical application because recorders run at slightly different speeds, and because (I discovered) running a 2K program on a 16K machine ***will*** have slightly different (slower) timing than on a 2K machine, it would be nearly impossible to develop tapes for systems other than my own with the proper spacing (not so wide apart that the wait for the next load is boring, but not so tightly spaced that a slightly different setup would run past the start of the second program before trying to LOAD it. Still it's fun to have a 2K tape-based machine ***automatically handle*** a larger program. Almost like having Windows use the hard drive as virtual memory! Well, maybe not ***almost***, but you get the picture...

Gilliam V. Parrish
Beggs, OK

From: Don Walterman To:Bob Swoger

Just wanted to thank you for inviting us to the Coco show. We received a warm welcome from everyone we talked to. That says a lot for your group since we were not Coco people.

Would you consider expanding the show for T/S folks next year? I think if we started talking it up a year in advance, we might get some more folks there. In fact I'm going to just mention it this weekend at the QL show and see how much interest there is. I doubt if the QL show would merge in but for myself, I'd be happy to go to both shows. Regards, Don

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Abed, I showed them the Speccy CD at the CoCoFest. 300 games - emulator... --==GATOR==--

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From: Don Walterman To: Keith Watson
Subj: Speccy CD

I assume you want one of the Speccy CDs. Would you like me to pick up one from Frank this weekend?

Subj: stuff from the CoCo show

Began wading through some of the stuff we brought back. Are you interested in any newsletters? I only needed a few of them. The ones I didn't have were interesting though. A good set of Syncware news and a pile of the Boston Computer Society T/S newsletter. Also misc. newsletters I never even heard of.

We should never need a blank cassette tape again. Let me know how many dozen you want :-)

After we all go through the stuff, I hope to put a list together for everyone else to go through.

Doesn't look like any commercial 2068 stuff. Boxfuls of tapes but no detailed index so you need to load everything to figure out what it is.

From: Don Walterman To: Keith Watson
Subj: Spectrum

Left a note in area 7. We'll see if anyone is willing to help us with either membranes, RGB info or even a PAL monitor. Can't hurt to ask right? That's how I got the Spectrums in the first place :-)

From: Keith Watson To: Don Walterman

Sounds like a good idea. I hope it works. I did try the computer I got at the CoCo fest and it works. Next I tried it with the twister board and Interface1and that worked as well! Next, I going to burn a TX EPROM for Interface 1 so it will run in Timex mode. Should work since it does in the emulator.

From: Don Walterman To: John Impellizzeri
Subj: Atari

Been reading the web on the Atari. Also tore it apart to check it out. Looks like I can do a lot with it if I'm patient. If I'm willing to spend time with a soldering iron, I can upgrade the 1 Meg chips to 4 Meg of 1 Meg simms. The 720k floppy can be upgraded to 1.4Meg. I can use a VGA monitor as a 640x400 monochrome monitor if I can find the unique Atari monitor cable to wire up. Also has an ASCII port (almost SCSI) that supports hard drives. So, with some serious work, I can have a 4 Meg Monochrome 640x400 QL with hard drive and the Atari special stuff. Its

strange to run the Atari BASIC. It brings up 3 windows (!) just like the default QL setup. Guess who did the Atari Basic? Metacomco - sound familiar?

Looks like Atari support on the web is pretty good. There is an Atari Tech usenet group as well. It looks like I'm going to have to get a regular service like Netcom. I can't post to usenet groups from Ford or from the freenet. There is a way with Deja News but that gets really ugly.

I'm really going to be hunting at the Dayton Hamfest for Amiga and Atari odds and ends. At least now I have a bit of an idea what to look for.

From: John Impellizzeri To: Don Walterman

Can't wait to see the Atari, really sounds interesting, especially the 3 windows! Merz does seem to be the expert on making Atari's into QL's.

I'm trying to do some persuading to get one of the two days off for the Dayton Hamfest.

Started going thru the stuff from Elgin. Both 2068's work, the 1000's work but a couple have the dead keyboard problem. 2040 works. There was a Gladstone 64K RAM Pack with one of the 1000's that doesn't work along with a 16K that's dead. Couple of others do work. I went thru the box of books and have another box for you & Keith of duplicates and copies of books I have already.

With sadness, our President and friend Harvey Rait, passed away in the middle of April. Harvey's daughter called me and stated that the service would be held on Sunday morning, April 28th, Rockville Centre, NY. Bob Malloy posted the arrangements on the Internet and we attended the service. There were over 100 men and women at the service - a testimonial to the man, Harvey Rait, my friend. I have been mourning Harvey for a week, thinking about this man I call my friend. I recalled the first time I met Harvey at Bob Malloy's home in the fall of 1982. We were going to join the LIST Group in Northport at Paul Donally's home. Every second Sunday of the month, we would meet at Bob Malloy's home and then motor on to the LIST meeting. Approximately, five years later, we lost the meeting room at the Huntington Library. We didn't know what we would do for a meeting place and Harvey came to our rescue - we could meet at his home.

Harvey had become our President. For ten years he would wield the gavel with wisdom. Who will take over the reigns I don't know.

Harvey was my friend! May you rest in peace! And for his wife Sandy, and their children and grandchildren, we wish you well. Harvey, we all love you ...

Bob Gilder

from the April '97, LISTings Newsletter

Battery Backup for the Z88

I went to my favorite electronics place a few days ago and while there saw a bunch of AA battery boxes (*battery holders*). These were odd ball ones with space for three batteries but only had the contacts in place to use two batteries. I had been thinking about doing the project by Tim Swenson in the July 1995 UPDATE pages 43-44 in which he made an external power supply for the Z88. BUT! with these odd ball battery boxes at $0.18 each I could hardly resist trying out the idea.

So I had the first part of the project parts and all I needed was the plug to fit the external power socket and the wire between the battery boxes and the plug. So into the garage to find some old stuff and as I looked I remembered having cut the cords with plugs attacted from the odd ball power supplies I had accumulated. I finally found them and I found one with a white cord which had a right angle plug on the end. I tried the plug in the socket of the Z88 and Joy of Joys it fit. Whether it made contact or not I didn't know.

I determined the lead that connected to the center of the plug and then soldered that to a red lead from the battery box. Then I soldered the black lead of that battery box to the red lead of the other battery box and that boxe's black lead to the other lead of the cord. Before I soldered I slid heat shrink tubing on the wires and after soldering I shrank it with heat from a match.

I put batteries in the boxes and tested for center positive and for 6 volts. That checked, so I plugged it into the problem Z88 and turned it on, so far good. Then I turned it off and turned it over and removed the internal batteries and back right side up I turned on the Z88 and it came on. I turned it off and waited a good 20 minutes and again turned it on and still working. I turned it off and installed the internal batteries and checked, still came on when I press the two shift keys. I unplugged the external batteries and then I tested and the Z88 came on as it should.

Now I can safely change batteries without loosing the contents of the Z88. I have a few project cases so I will check into using one to hold the battery cases so it looks neater. The cord that I put on the battery box is 6 foot long. That gives more than enough slack to turn the Z88 over and remove and install new batteries. 0/0.

Donald Lambert

To: Bill Cable bcable@triton.coat.com

Bill, we met at the Milwaukee Fest back in 87. The Chicago Area had a small SinclairFest April 26, 1997 at the Holiday Inn in Elgin Illinois. We knew of the NESQLUG fest but went ahead anyway. We had 7 people attend this short notice fest. It was one table at a CoCoFest. The CoCoFest people asked me to find out if there would be interest next year of combining a CoCoFest with a bigger Sinclair FEST including the QL followers. As I see it, Dayton is of less interest to Sinclair people and they might rather attend an Elgin, IL fest instead. The Elgin event has gone on for 6 years now and this was the first year Sinclair was invited. Wisconsin didn't come down but Watson, Impellezzari and Walterman of Q-BOX came in from Michigan, Nazir Pashtoon, Bobby Muth, Phil Kwitkowski and myself came from the Chicago area. I understand the Michigan men also went to Bedford a week later? I believe we will do exactly what we did here next year and wonder if it could be expanded to include the QL folks?

Also I saw the QL fest at Bedford called for TS1000/ZX and Spectrum/TS2068 users. Could you guess for me how many of those folks came to Bedford?

Thanks, Bob Swoger CENG108@email.mot.com

Hello Don,

Yes, I am willing to let the balance of my TS inventory go for $1000.00 including shipping for the whole works!

I really need the room and am no longer making many sales of the product. I am lucky to sell $50 per month any more.

I, too, would hate to see it all go into a dumpster, but I have very little choice if no one buys it.

I have printed out some price lists from my inventory program and am enclosing them. I think that most ail of my TS inventory is included on these sheets. Anything that is not listed would still be shipped out with the entire package. Whoever buys one part of the lot buys all of it, including the TS1000 items. It.'s an all-or-nothing deal.

If they are interested in the deal just tell them to send the check and 1 will begin shipping the boxes out as soon as I can get them packed up.

As you know. my vision has been getting worse of late, ...

From: Timothy Swenson <swensont@projtech.com>
Subject: Re: ZQA!

Abed,

Since my QL is not really up to speed, I have not worked on any new issues of the QHJ. The last one was back in December. If you do not have it, I can send it to you.

I am starting to get the urge to do more with my QL, but since my ED drives, modem, and mouse are in storage, I really can't press forward. Even the disk drive I have kludged together is having problems. It can read HD but can only format DD.

When is the next issue of ZQA due. I might be able to put an article together about new freeware that I've downloaded off the Internet.

Timothy Swenson Tel: (510) 567-0255 ext. 616
System Administrator Fax: (510) 567-0250
email: swensont@projtech.com

FROM THE CHAIRMAN'S DISK

Donald Lambert

At least I got this started before the last minute like the last two or so issues. I finally got some stuff done on the Z88. Some can be interpreted as very little from one standpoint. From another it was a lot of time mulling over why it didn't work or how should I do it. From the article I submitted it will explain some of my problems BUT mostly a failure for me to understand what I was doing.

Back to trying to do hardware.

I picked up some connectors at Radio Shack and will try for a Z88 to Z88 connector to transfer programs from one to the other. If I get that going I will report on that later. Also, I have the parts to build a new interface for the disk drive. All I need is the 25 pin to 9 pin converter. I will have to peek into the hood to be sure there is nothing there except wire. By hood I mean the cover that is put over a connector (not one of those enforcers that lean on a lamp post waiting for trouble). The original disk drive cable has a hood that goes from 25 pin to 9 pin but I haven't seen one locally or in the catalogs that I have.

Not that I don't distrust the Z88 but I take a peek at the screen every few days (if I haven't been using one) to see if the BAT LOW light is not on. Now that I have a back up external battery I can safely change batteries without loosing everything in the computer. For a while I sure was having to reset the clock and date often. Hopefully I am beyond that point.

I have a dock board for the TS-2068 that I have no docs for. The board has 48-85 A-0 design by AERCO on it. Two EPROM's labeled "TS-2068 Toolkit (a)8000-BFFF" and "TS-2068 Toolkit (b)C000-DFFF". I have plugged it in and nothing happens and punching keys does nothing. Anybody have any information an this dock board or the Toolkit?

Another interesting module that plugs in on the back with a feed-through. It is enclosed in a blue box and has on each end a screw terminal with space for 6 connectors. It has a chip CD74HC00E. It is a two sided board and one end an the front (as connected to the computer) has b, g, r, -, +, gn and sync in the etching. On the other end is soun or is it nuos, (maybe sound?) and gn and tape out and ear blurred by heavy solder soa? and etched in on the circuit board ENTER 1984 and below that LENGUA . I think it might be half finished since their is room for two more 14 pin ICs. It has markings for a 47K resistor and something is there and a 47μ cap that is missing. What is it and are there any docs for it?

The information that I did not give for external battery back-up for the Z88 from Tim Swenson's article in UPDATE is given here. 270-627 project box 6¼ X 3¾ X 2 (inches) $2.79; 270-396 D battery holder $1.79; 274-1569A coaxial DC power plug 5.5.5 mm $1.69. The two lead wire for the connector is something else, I got mine from a AC to DC powersupply that I tossed after I cut the cord. The center of the plug is positive for the Z88.

Tim mentioned making a tie strip to control his cables for Z88 in his attaché case out of Velcro strips that he had to sew together BUT! did Radio Shack saw his idea? Anyway they have the strips that are 3/8" wide and 3 foot long to be cut to length to make cable ties. 278-1675 (new item)) for $1.49. Your choice of colors so long as that is black! Be ideal to get that clutter of cables an the back of the TS- 2068 under control.

Enough for this issue. Better get this SAVEd to disk and printed off since a storm is rumbling and I could loose power. Till next issue, so long. 0/0

QHJ

Off the Net

by Tim Swenson

Every once in a while I'll spend some time checking out what's available on various QL related Web sites. Here is what I found recently.

QLAY - QL Emulator for MS-DOS

Just released is QLAY, a new QL emulator for MS-DOS. QLAY is a freeware program that emulates a 128K or 768K QL. It comes with the JS ROM, but ToolKit II ROM images can be added. QLAY is at version .7, which means that a lot of important features are not available. QLAY does not recognize SER, FLP, HDK, or NET devices. MDV image files are used for storing data.

QLAY requires a 386 with at least 16 Meg of memory. A 486/66 will emulate a QL at full speed (some what slower than QPC). Even though QLAY is a bit limited in getting data in and out of it, it emulates a QL pretty well. To demonstrate how it works, QLAY comes with an MDV file with QUILL. When running QLAY with the QUILL MDV file, after the emulator starts, it boots up into QUILL. With my limited testing, QUILL works just like it does on a real QL.

QLAY is written by Jan Venema of the Netherlands. Jan plans to continue development to get a "real" working QL on a PC. This will include support of QL disks, saving files in the hard drive, printing to the parallel port, etc. When version .9 comes out, Jan plans to make all of the source code available.

QLAY is available from Jan's web page:
http://www.inter.nl.net/hcc/A.Jaw.Venema

Jonathan Hudson's Updates

Jonathan Hudson has a number of updates of his software available on his web page. In brief they are:

QTPI v.1.62b (5/11/97) Beta test of QTPI. Includes Q-Box console enhancement, Large (wide) screens, new config options, etc.

QDOS XPR v3.56 (5/11/97) These file transfer protocols are needed for QTPI. The reported fix is it correctly reports transfer percentage for large files.

QFAX v2.82 (3/28/97) Minor update. Adds 200dpi mode to printfax and fixes "SAVE" bug in qfaxthing.

ATP v1.42c (3/19/97) Removes the random, irritating, and invariably untrue "packet too old" message. This update only contains the fixed binary file.

UNPIC v0.02 (3/19/97) Tools to convert _scn and _pic images to GIF, TIFF, BMP, or PCX.

Winexplore v2 (2/13//97) C68 demo program to explore window events, with source code and wm_prt (read pinter with timeout) code. Modified for correct timeout handling in action routine.

QFAX v2.81 (1/12/97) This version provides no new features, but fixes known bugs in the previous release.

QEYES (3/2/97) A version of Xeyes or Google-eyes. Eyes on screen follow mouse cursor. Featured in QL Today.

Jonathan's page is at:
http://www.jrhudson.demon.co.uk

QPC Support Page

Marcel Kilgus, the creator of QPC, has put up a QPC support page. It primarily lists the current versions of QPC, SMSQ/E, Config, and the Installation program. Marcel reports that he is working on version 1.20 of QPC. He is also working on a different version of QPC that uses a new emulation technique that should speed things up. Also on the page is a PD version of QPC (version 1.15). There is also a "hard disk" file that contains software, the manual, and sample AUTOEXEC.BAT and CONFIG.SYS files. This "hard disk" file is about 1.5 Megs, so it may take a while to download.

The QPC Support Page is at:
http://www.deuschle.de/qpc

Ergon's Web Page

Ergon Development has a web page with a number of useful utilities to download.

PICE v2.1 - allows the QL to redraw partially overlapped windows. Requires PEX (available on web page) or PIE. Also requires Minerva or SMSQ.

Turbofix v2 - Allows the use of some Turbo Toolkit keywords on Minerva or SMSQ.

CPU Toolkit - Two keywords to tell you what type of CPU you have (68000/8, 68020/30, or 68040), and how fast your (Super) Gold Card is running.

Another one of their pages lists PD versions of some of their software.

MasterBasic v1.46 PD - MasterBasic is a development and debugging utility for SuperBasic and SBasic.

DEA Intelligent Disassembler v5.21 PD - DEA takes an executable file and converts it back to assembler code. Useful if you want to figure out how a program works.

Floppy Disk Utilities v1.21 PD - Aimed for the (Super) Gold Card user, these utilities pack includes a disk editor, disk copier/formatter/verifier, File Recover, Collect, and Print Sectors.

Ergon's web site is at:
http://www.geocities.com/SiliconValley/Park/6533/

Availability

All of the above listed files (except for the QPC "Hard Disk" file) are available from QHJ Freeware, on either HD or DD disks. Please format the HD disks before sending them, my floppy drive refuses to format them properly.

QHJ Freeware
Timothy Swenson
38725 Lexington St. #230
Fremont, CA 94536

More Net-Surfing With The 2068

by David Lassov

Before we get into details about the many ways of using the 2068 to gain **textual** information from the Internet, let's briefly clear up some misconceptions and errors from last time !!

After listing an E-mail message to you, the ***mail*** prompt "?", will appear. This initiates a reply, should you type, "r" and press ENTER. This also *deletes* that particular E-mail from your electronic mailbox. In order to *delete* the letter *only* (without a reply) then simply enter "d" after the *mail* prompt, "?".

Regarding Mailing Lists, a couple of months ago, entering the line

lynx http://scwww.ucs.indiana.edu/mlarchiv

would generate a long list of mailing lists for us to join. Apparently, they have gone out of business. Currently, the net is a model of freedom : freedom to use, lose, and abuse.

When using **lynx** to navigate the web, there are two contrasting ways of initiating a session:

Either lynx username@computername

or lynx, all by itself.

In the latter case, the Internet banner will fill the screen. Now, you can ENTER

username@computername

in order to ***connect*** with username's site at computername. In this case, we learn, that scwww.ucs.indiana,edu is *not found* !

So, for cool sites on the Internet, **use'em or lose'em but do not abuse'em** !!

We wish to take this opportunity to announce the opening of a new Message Base on SOL BBS, entitled Advanced 2068 Topics, and dedicated to new applications for our 2068 like ASAPfax, branch switching, and Internet applications. SOL BBS is at 520 882-0388.

Now, we wish to pass along some inside information on Surf'n the Internet with the 2068 :

The idea is that we want to use the numeric keypad, the top row on the 2068, to **act as arrows** for navigating the web.

1. Get the UNIX prompt $ onto the screen.

2. Enter the lynx command.

3. After lynx displays any "home" page, the cursor stops for your response. So, press o, in order to display the Options Menu.

4. Select the keypad option, by pressing k

5. Press the space bar, or BREAK key, repeatedly, till the value of this option has the number keys pointing to arrows, not to links

6. Accept this value, by pressing ENTER.

7. SAVE this setting and leave the Options Menu, by pressing >.

OK, now that goes into your configuration file, which is maintained by UNIX.

From this point on, we can use lynx to bounce around the web pages, as follows :

"1" acts as the ***end key*** (move to the end of current web page.)

"2" acts as the ***down key*** (move down one link on the current page.)

"3" acts as the ***page-down key*** (move down one screenful.)

"4" acts as the ***left key*** (jump back to the previous web page.)

"6" acts as the ***right key*** (follow the selected link to the new web page.)

"7" acts as the ***home key*** (move to the top of current web page.)

"8" acts as the ***up key*** (move up one link on current web page.)

"9" acts as the ***page-up key*** (move up one screenful.)

This is not the only way to set up the keypad for surfing the net, but we find it a profitable way to while away the hours at the keyboard.

Navigation 101

We note, that key 6 above, "follows the *selected link* to new page". On the 2068, a link is selected, by pressing 6 when the link is listed at the *bottom* of the page.

What is a page? That's what you get, by ENTERing

lynx

or lynx username@computername on a line. It is a list of information and information sources, called links. You access the information source or "follow the link" by "clicking on it". In the case of the 2068, you press 6 or ENTER, while the desired link is at the bottom of the screen. Try it, you'll Like it !!

Should we get lost, Just press m, which takes us back to the first web page.

We search for a pattern, by pressing 7 and going to the top of the current web page, where we ENTER /pattern.

Using the number keys to navigate the web is actually necessary, since *special keys* don't work on the 2068. These include keys like *end, down, page-down, left, right, home, up,* and *page-up*. Actually, Larry says to use SS-D, in order to get the ***home*** key, but it never works for me!

So, here we go :

1.LOAD a web page, containing a large amount of data, including color graphics.

2. Press p.

3. Choose from many Output Options.

Save to a local file ===>>> Saves the text of a web page to a file on the UNIX host, where it can be downloaded, etc.

Mail the file ===>>> Mails a copy of the web page to someone.

Print to the screen ===>>> This is what I always use.

None of the color graphics appears, i.e., **no garbage**. I just *capture* it to my capture buffer, if desired.

When using lynx to browse the web, we can get hypertext (web sites), gopherspace (menus of menus), ftp catalogs of files), telnet (access to other Internet sites),

news (access to usenet), or mailto (E-mail.)

Suppose we run into some good files, while using ftp of or gopher. Then, we press d (download). Two choices follow:

1. SAVE to disk.
2. DOWNLOAD to local terminal via ZMODEM.

#1 Will download the file to a disk on the UNIX computer. #2 Will download the file right to the 2068, since I've never had problems with ZMODEM.

In response to the UNIX prompt $. we can send ME mail, by using the line: MAIL emanon@azstarnet.com

But, if we are already in lynx, well we just use MAIL TO: emanon@azstarnet.com in order to accomplish the same objective !

I mean, if we are using lynx to look at a web page, listing a lot of links, then, we can use lynx with *mailto* to SEND mail to any one at the other end of a link !

Next time, we will start, by clarifying any mistakes from this time and finish up , by discussing *the cool way* to access USENET !

Keep On TIMEX'n .....

Insomnia Over the Z88

by Donald S. Lambert

CAUTION! This an attempt to document the start of learning about the Z88 by a person that just might be more senile than the person seen in the mirror in the mornings appears to be. However, here goes.

I have two Z88s, one is the one that I sent in to have the Z88 upgraded to V4.0 ROM with 512K RAM installed internally. The other is a used (or reconditioned) Z88. The upgraded Z88 came with a manual that was in standard book binding and the pages were coming out; so the day that the used Z88 came, I was in the process of removing the pages and punching them to fit a half size binder I had. I completed the task even after I saw that the used computer came with a wire bound manual. I also have the two books, one is the manual that came with the computer and the other is the book "Z88 Magic" by Vic Gerhardi, Bill Gerhardi and Andy Berry.

I have one questions; Is there any instructions for the V4.0 ROM that are different than for the earlier ROMs? That could explain why I have trouble with it.

I have had a Z88 for quite some but have not used it. Part is the lack of ambition to get it going and part is that the times that I tried to do something I ended up being locked out by lack of knowledge of how to do it. Part is that I do not find out how to do what I want to do from the manuals that I have for the Z88. And part is that I didn't really give it much thought about the way to store a document in memory. Just recently a concept made it more easy to reconcile the process of getting the document into memory. I suddenly saw that if I considered the memory as a mass storage device (and it is) then I could more easily relate to that.

My progress has been anything but smooth. When I heard that a disk drive could be connected to the Z88, I JUST had to have one. So after finding and receiving a pair through Radio Shack I ordered the hardware and software to enable me to use the disk drive. But I soon learned that I had to have more internal memory so I ordered a 128K RAM and then I got the program transferred from EPROM to RAM. Then I tried the disk drive to FORMAT a disk and got an error message. So I tried again and still an error message. So I finally used a different disk and this time it worked. The first disk was bad apparently.

About that time I learned that I could upgrade to Version 4 ROM and 512K internal RAM, so I did. Then the gremlins hit. Seemed to work 0.K. until after a while the computer came back on and the keyboard was locked up. I read and reread the manual and started out from scratch and I again tried it and again, it woke up (screaming and kicking) with a locked up keyboard. I tried it several times and finally sent it back for repair.

It came back from Texas with a note bad keyboard and now 0K. but testing and it stayed asleep longer but still woke up locked up. I reread all the material on initializing. I had put the batteries in and I had *reset* twice and it had not stayed in the sleep mode. I wondered why the computer needed to be *reset* so I tried it with only one *reset* and this time it woke up about 24 hours later. I tried it again and had the same result.

So I again tried it and this time I did not press the reset button at all with *the straightened out paper clip*. I checked the computer several times, *that is I just looked to see if the screen was lit*. Finally after several days I pressed both SHIFT keys and it came up and was apparently normal. I even timed the auto shut off and that worked. Now this computer has the version 4 ROM and 512K RAM installed internally. I think it might have been a later issue computer since in the upper left corner of the computer it has Z88. The manual had the pages glued to the spine and is listed as the fourth edition.

I ordered a second Z88 computer, used, this has a version 3 ROM and nothing extra added to the computer. The manual that came with it is a spiral bound manual and the page count is almost the same. The upper left corner of the computer has Cambridge Z88. At least it works like the manual as far as reset and the sleep mode goes.

Today I tried to install the 128K EPROM that has XOB (disk system software) on it into the updated computer. I panicked thinking that the program had some how disappeared from the EPROM but after I tried to install it into the unexpanded Z88, I discovered that I was supposed to be in the FILER to use the EPROM. **There Is No Cue Card Or Simple List Of Commands For This Computer!** This is sort of like when I first started with disk drives on the TS-2068 and the LarKen LKDOS. I had a file card with the commands on it. It took me a long time to figure out on the LarKen system how to get an AUTOSTART program to work with it was not on drive 0. The program was on an 80 track drive and my 80 track

drive was drives 1 & 2. I work up in the middle of the night with the answer. DO RAND USR 100: GO TO 1 (ENTER) and then RAND USR 100: NEW (ENTER) and voila! up came the program.

Back to the Z88s. I now have to see how to get the program into the computer so that I can CHAIN it. What is CHAIN? I don't know but it is a BASIC command. The description of it in my 3rd edition The Basic Handbook by David A. Lion runs to 5 pages so it is not an unknown command. I will see if that makes it any clearer. It didn't so that is no surprise.

Before I ramble on I will give some thoughts here about the Z88. When I put the EPROM in that had the XOB (disk operating system software) I had it stood on edge to push the EPROM in and since I used an old wood topped typing stand it was slippery. The EPROM seated and the Z88 slipped in my hands and lit on the bottom and slammed the cover shut and it beeped as it was supposed to do. I guess I did not do it any damage but in the future I will use a less slippery surface to support the Z88 when changing any of the plug-in modules.

Also, I found it hard to pull out the modules till I used a small screwdriver to slip in the end of the module and thus lift it out. With my stiff fingers I cannot grip the modules (or cartridges) so it is not possible to remove without some sort of help.

Where do I store my two Z88s? I put them into a hanging file folders. I have one of those $22 keyboard covers (*toppers*) for one but the other I have none. I suppose that the two SHIFT keys won't got pressed in the hanging file but Just in case I made a deal out of cardboard to lessen the danger of that. I cut a piece of corrugated cardboard with the corrugations running the long way with the dimensions of 11½" by 18.375" . I made marks 8.5" from either end and used a ruler to guide a screwdriver that I used to pull along the ruler to sort of crush the corrugations so that the cardboard would fold at that point. The cardboard could be covered with wallpaper to make it look neater. The splice is wider than the Z88, so that it helps hold the pressure off of the keys if the file drawer is full.

I had a set of batteries show *bat low.* so I replaced them and then checked the batteries with a Radio Shack battery tester. The tester showed the batteries to be in the yellow or replace area. A voltmeter will give a higher reading since it does not *load* the battery. The RS tester has a resistor across the battery to load it for the test. When I put the batteries in I did not use fresh batteries.

I have XOB installed in both Z88s, but somehow it is spelled differently in one. But CHAIN will fetch both into the working area so it can be used. Next step will be to test out the disk drive on both computers.

Here are the **functions** of the XOB (Disk Drive Software)

CAT DELETE SAVE LOAD RENAME
FORMAT BANK=0 QUIT STATUS REPORT LINE

To use XOB you need to be in BASIC and CHAIN "DISCMGR", when you press ENTER there will be the XOB menu. Use the arrow keys to move around, when the highlighted bar is over the option that you want to select press ENTER and the prompt will guide you. It will initiate with CAT highlighted. I had a disk that was not FORMATted by XOB in the drive and pressed CAT and the REPORT LINE reported 'Unexpected Reply'. Put the highlighted bar over FORMAT and press ENTER and you get on the main screen 'Are you sure?' press Y and ENTER and it will FORMAT. The light on the drive will blink fast a few times then will start to blink as it FORMTs each track. Then it reaches the end and seems to go back and check each track but at a faster rate. When FORMAT is done the REPORT LINE will report 'DONE, 0K', the highlight bar is over CAT again. Press ENTER and you will see on the main screen as a result of the CAT 'Free Space 202240 Bytes'. There is no disk name.

The manual (9 pages of text) for XOB states that there is a maximum of 40 files per bank with two banks of files. Or 80 files per disk. But remember that the 3.5 disk

Civilization

ZX-TEAM MAGAZIN

The program is an adaptation from this famous game by Microprose for PC's that requires 6Mb of memory. **But...** the **ZX-81** has done it with only 1K of memory.

You are the leader of a small group of people at the beginning of history and you have to transform your people into a big civilization. But you are not alone in the world, there are others that will compete with you. Unlike the PC version, the ZX-81 is your only competitor here.

At the start of the game, 4 numbers are displayed - 2 for each group. Z and K indicate the infrastructure, M and L the military strength.

Before you know it, another set of numbers appears - the ZX had attacked you and the numbers reflect your losses. The civilian (infra-structure) losses are always 3 times as much as the military losses.

You have to make decisions on how to divide your strength between the military and the civilian keeping in mind your utmost goal. Peace with prosperity or expansion with war.

```
 10 LET M=VAL "0"
 15 LET I=M
 20 LET A=VAL "1"
 30 LET K=A
 40 LET L=M
 50 LET A=INT (A*1.5+1)
 60 LET K=INT (K*1.5+1)
 62 CLS
 63 LET I=I+VAL "1"
 65 LET V=A+M
 66 LET W=K+L
 70 PRINT " Z";INT A;" M";
INT M; "  K";INT K; " L"
 80 LET S=RND*L
 85 LET V=V-S
 90 LET A=A-0.75*S
100 LET M=V-A
115 LET W=W-S
120 LET K=K-0.75*S
130 LET L=W-K
135 IF L<0 THEN LET L=0
140 PRINT "SCH: Z"; INT A;
"  M"; INT M; " K"; INT K;
" L"; INT L
142 IF A<0 THEN GOTO 190
145 IF K<0 THEN GOTO 200
150 INPUT M
160 LET A=V-M
170 LET L=0.5*W
175 LET K=W-L
176 IF A<0 THEN GOTO 190
177 IF K<0 THEN GOTO 200
180 GOTO 50
190 PRINT "LOST"
195 STOP
200 PRINT "WON"
210 PRINT I
```

is only used on one side. Further experimenting will be done as soon as I get into all the operations of the Z88 itself.

About the 3.5 disks that I am using. At a computerfest I had a great buy of 3.5 disks. Even with a problem that I just now discovered they are still a great buy. The problem is that the little slider that controls the *write protect* is missing. So I used some gummed labels to cover the hole on both sides and since the labels don't like to stick to the plastic I put Scotch tape over, beyond the write labels (can't call these write protect since on the 3.5 disks you cover the hole to be able to write). When I bought the disks I never thought to check for the write tabs.

Back to the gremlins again. Both Z88s showed **bat low,** so I had to replace batteries AND! both failed to retain memory after the battery change. I panicked when neither computer came up with a screen but did when I did the hard reset. The one that doesn't like to sleep is back acting up again. Thought I had that problems solved but no! Of course I had to power down and remove all the modules and get back into the FILER after replacing the batteries and doing a hard reset. I can't remember just how long the other batteries had been in the computers, so this time I put a little sticker on the battery cover with that date typed on it.

Now I am trying to get a file named and SAVEd to the computer so that I can get it to SAVE to disk. Maybe I should PURGE the computer and start over with an empty memory. This certainly works differently that the TS-2068.

I just learned that I was not giving the Z88 a hard reset since I had failed to open the cartridge door. I will see if that settles down the one with insomnia. I have started *a crib sheet to remind me as I go along.*

I finally got a file SAVEd to the FILER and I got it SAVEd to disk. But the commands are not like the book. Or at least not like I read the book. But I did discover how the disk drive stores the program on disk. By that I mean the amount of disk space is used-up by a simple file. I had two sentences, that was a file, and I SAVEd that to disk. The smallest file on disk is 1280 bytes. So that means since the limit of file names is 80 that it is possible that the last part of the disk will not get used.

Progress is slow but I learn. I have learned that the really important information is buried in the middle or back of the manual. BUT! one important thing is to name your external memory right after you install it or else if you name it after you have SAVEd some files, you won't see the file names when you go to the FILER. As I type I wonder if it is in the CAT RAM if I designate RAM.0 if I will see the file names. I had a file SAVEd on disk that I reloaded back to the Z88 and I finally accessed it by way of :RAM,0//filename. I guess I could go back to the PANEL and re-label RAM 1 to RAM 0. Or I could use INDEX to see file names and then transport the files from RAM 0 to RAM 1. Then erase the files in RAM 0. It would be easier to remove the RAM cartridge and do a HARD RESET but I think that if I try the transporting of files from one RAM to another that I will learn more.

In a sense FILER is a sort of DOS for some of the other features of the Z88. If you think of the RAM as disk drives then that is a good analogy. It seems that I spend a lot of time resetting the clock and calendar. But it is easy to go from PIPEDREAM to the FILER and use ESC to exit FILER and go back to PIPEDREAM to exactly where you were before.

Right now the Z88 with the 512K internal memory finally seems to be working correctly. I am now timing the time out feature and see if it will go to sleep as it is supposed to. The last time it woke up with a frozen keyboard, I did a soft reset and since then it seems to be behaving. The time out ran to about 6 minutes before it shut off and I put it to bed in the file folder in the filing cabinet.

I do hope that I haven't bored you to tears with my tale of woe but I imagine that many have went through a lot of difficulties before they became proficient with their computers. With one computer that does not operate correctly and a poor map and an unknown road to travel I have learned quite a bit. I can see a lot of uses for the Z88 once I feel confident in its use.

If I was writing the manual or the book "Z88 Magic" I would have put the order of ways to get going a lot differently. I would have had the initialization with battery installation first an then the inserting of the cards or modules. Following that I would have the PANEL to set American or European for the date and then the CLOCK. Then the most important feature, the FILER would be next. []FS is the command to use in the FILER to save a file to RAM from PIPEDREAM. To LOAD use []FL. They sure have that information buried. 0/0.

Doc Holiday Morgan Earp Virgil Earp Bat Masterson

Men of Tombstone

Daisy Be Good Part XI

by David Lassov

Well, guys and gals, we have attempted to bring Daisy into the 21st century, by making better use of RAM and faster I/O operations.

In order to retain all Daisy's features in the process of optimization, we have broken it out into four specialized routines, which Loads and Executes rapidly.

We still use some ***virtual memory***, but we incorporate RAMDISK as much as possible, like for storing menus. Then, instead of waiting for a file to LOAD from disk, we only wait for a bank to switch, from Home to Dock and back, again!

Of course, Zillion has some faster and larger replacements for the Z80 chip, but they require a modified Operating System. So, we limit ourselves to the Z80 chip, LKDOS, and RAMDISK.

Our new and new and improved version of Daisy in matched to our 9 pin printer, M1109 by Brother.

We wrote "stymn.B6", in order to bring out the best features of our printer, and we wish to now consider *how* the Busy signal is handled on the printer channel #3. The 2068 looks at the printer port 127 for a busy signal, IN 127 :

```
3 IF IN 127 = 229 THEN RETURN
4 GO TO PI
```

Note, that GO TO PI is a way of saving memory, when all we need is GO TO 3, and we check that printer be *idle*, before sending any control codes, OUT PO, so, say, to the printer :

GO SUB PI: OUT PO, so (where we have po=127 and zo=27.)

Also note, that my 9 pin printer has IN 127 = 102, when it is BUSY, different from the 24 pin printer! But, the way it is coded, we are looking for printer idle, all the way !

For our 9 pin printer, we use our Print Style Menu to select among Pica, Elite, and Italic, after specifying Condensed, Enlarged, and Double-Strike. Then, we "set" the printer, by sending all the selected information out Port 127 by frequent use of GO SUB PI ... . After the BEEP, we can ESCAPE to either the Format Menu or the Function Menu.

Making use of the pre-selected parameters, the matrix printer follows all our wishes, regarding print chain to print out Daisy documents with.

By GO SUB il, we mean to PAUSE and read the keyboard for input and PRINT our selection (where we have il=2550.)

```
2550 GO SUB sq: PAUSE oo: LET z=CODE
INKEY$-CODE "o": PRINT #RND;z: RETURN
```

With sq=2576, we call the Bill's SQuawk routine.

As discussed above, the Print Style menu, ps.C1, is loaded as a Screen String.

Print Style Menu

FIRST select print mods (4-7)
- (1) Pica (80 CPL)
- (2) Elite (96 CPL)
- (3) Italic (80 CPL)

NEXT select print style (1-3)
- (4) Condensed (1.6 times CPL)
- (5) Enlarged (half CPL)
- (6) Double-Struck (same CP0
- (7) None (reset)
- (8) Format menu
- (9) Function menu

LX= TB=

QQ= LL=

```
8001 LET con=oo: LET enl=oo: LET
 dst=oo
8002 ON ERR RESET : GO SUB il+ol
 RANDOMIZE USR m1: LOAD "ps.C1"
SCREEN$
8003 LET c=od+ps: INPUT ;: PRINT
 AT oe,oa;" ";AT of,oa;" ";AT og
,oa;" ";AT c,oa;"■";AT ot,og;tx;
" ";AT ot,oq;tb;" ";AT ou,og;qq;
" ";AT ou,oq;ll;" ";AT ok,oa;("
" AND NOT con)+("■" AND con);AT
ol,oa;(" " AND NOT enl)+("■" AND
 enl);AT om,oa;(" " AND NOT dst)
+("■" AND dst);AT on,oa;(" " AND
 z=og)+("■" AND z=og): LET xo=lx
: LET lo=ll
8004 GO SUB il: IF z<oa OR oi<z
THEN INPUT ;: GO TO k8+od
8005 IF og<z THEN GO TO k8+m1+op
8006 IF z<od AND ps=z THEN GO TO
 k8+ou
8007 IF z<od THEN LET ps=z
8008 IF pr=oa AND z=og THEN LET
con=oo: LET enl=oo: LET dst=oo:
GO TO k8
8009 IF pr=oa AND z=od AND ps=oc
 THEN LET con=NOT con
8011 IF pr=oa AND z=oe AND ps=oc
 THEN LET enl=NOT enl
8014 IF pr=oa AND z=of THEN LET
dst=NOT dst
8016 GO TO k8+oc
8020 IF pr=oa THEN ON ERR GO TO
k8+ob: LET lx=(CODE "P" AND (ps=
oa OR ps=oc))+(CODE "E" AND ps=o
b)+(CODE "8" AND (con AND ps=oa)
)+(CODE "." AND (con AND ps=ob))
: LET qq=INT (lx/ob): LET lx=(lx
 AND NOT enl)+(INT (lx/ob) AND (
enl AND ps=oc)): LET qq=(qq AND
NOT enl)+(INT (qq/ob) AND (enl A
ND ps=oc)): LET tb=INT (0.5*(lx-
(ll))
8021 IF pr=ob THEN LET lx=(CODE
"T" AND (ps=oa OR og<z))+(CODE "
b" AND ps=ob)+(CODE "S" AND (con
 AND ps=oa))+(CODE "B" AND (con
AND ps=ob)): LET qq=INT (0.5*(lx-
+oa))
8023 GO SUB k8+ou+of
8024 CLS : PRINT AT oj,oc;"One M
oment Please-"''TAB oc;"Printer
is setting . . . ": GO SUB mt: B
EEP oa/od,zo: GO TO k8+ob
8026 LET ma=INT (0.5+lx*lo/xo):
GO SUB k8+ou+oh: BEEP oa/ob,ov:
RETURN
8028 CLS : PRINT AT oj,ob;"KeyIN
 LINE Length"''TAB ob;lx;"=Max "
";ma;"=Match Margins": INPUT
INPUT LINE Length : ";ll: LET ll
=ABS ll: IF ll<=lx)+(lx AND lx<ll):
 LET tb=INT (0.5*(lx-ll+oa)): CL
S : RETURN
8031 IF pr=oa THEN RETURN
8034 GO SUB PI: OUT po,as: GO SU
B PI: OUT po,zo: GO SUB PI: OUT
po,t8: GO SUB PI: OUT po,zo: GO
SUB PI: OUT po,m1+oo: GO SUB PI:
 OUT po,oo: GO SUB PI: OUT po,zo
: GO SUB PI: OUT po,t5+oc: GO SU
B PI: OUT po,ou: GO SUB PI: OUT
po,zo: GO SUB PI: OUT po,t7+ob
8035 IF ps=oc THEN GO SUB PI: OU
T po,zo: GO SUB PI: OUT po,t5+ob
: RETURN
8036 LET NNN=(ps-oa)+con*od+dst*
oq+enl*CODE " "
8037 GO SUB PI: OUT po,zo: GO SU
B PI: OUT po,t3+oc: GO SUB PI: O
UT po,NNN: RETURN
8115 ON ERR RESET : IF z=oh THEN
 GO TO fm+oj
8116 GO TO fm
```

Well, guys, what can we say about Bill Jones' suite of Word Processors, that goes by the name of Daisy ?

First, Daisy was conceived and implemented in the days of expensive RAM and slow peripherals.

Second, Daisy is still marvelous, for getting so much performance out of the little TS2068 computer.

Last, Daisy can be customized ("matched"), so as to mobilize the best features of whatever 9 or 24-pin printer be in use.

So, Daisy is a fine example of programming in BASIC, using Virtual Memory. Today, "memory is Cheap!"

Referring to the first article in this series, Winter of 1994, any necessary customization is limited to DOS conversion, "stymn.B6", and "ps.C1" .

Assuming that we have gotten over the DOS hurdle, we are so familiar with printer matching, controlling, and styling, as to be able to write our own "stymn.B6" and "ps.C1"

Bill wrote "stymn.B6", in order to bring out the best features of his 24-pin printer, and we wish to consider how the BUSY signal is handled on the printer channel #3. The 2068 looks at the printer port 127 for a busy signal, IN 127 :

```
8080 IF IN 127 = 253 THEN GOTO bu
8082 RETURN
```

where Bill has bu = 8080.

Now, when the printer is busy, Bill has IN 127 = 253, and he checks for Printer Busy by GOSUB bu .....

Actually, Bill checks, that PRINTER is IDLE, before sending any control codes, OUT po, zo, say, to the printer:

```
GO SUB bu: OUT po,zo
```

(where we have bu=8080, po=127, and zo=27.)

Mr. Earl Kielgass of Tempe, AZ uses the same CPI cable for *both* 9-pin and 24-pin printers. He wonders why it works for one but not for the other. Well, IN 127 returns different values for 9-pin than 24-pin printers. His Word Processor is Tasword, and, between 9-pin and 24-pin printers, there may be many such differences in the CPI interfaces.

For the 24-pin Printer, Bill uses his Print Style Menu to select among Pica, Elite, Micron, and Compressed style, after specifying Script, Expanded Height, Italics, and Underline. Then, he "sets" the printer, by sending all the selected information out PORT 127 by frequent use of GO SUB bu ... . After the BEEP, he can ESCAPE to either the Format Menu or the Function Menu.

Remember, at program LOAD, we pressed 3, 2, 1, y, y. and y ? Well, in so doing, we committed ourselves to assigned values for pr of 0, 1, or 2. pr=0 is for the 2040 printer. pr=2 indicates daisy wheel printer. But, pr=1 gives us the matrix printer, where all the variable selections come alive.

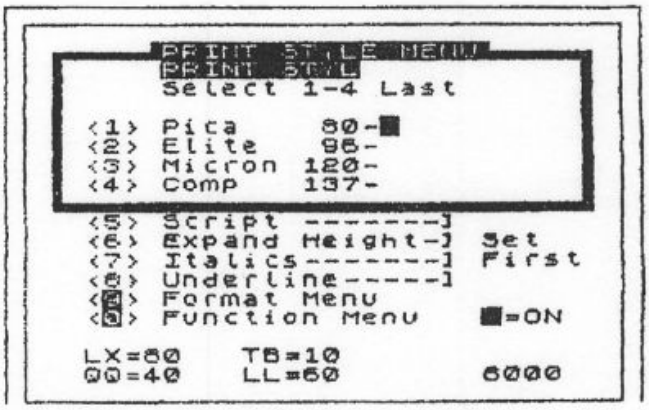
By GO SUB il, Bill means to PAUSE and read the keyboard for input (where we have il=2550

```
2550 PAUSE oo: LET t$=INKEY$: IF t$=
" " THEN GO TO il
```

With sq=2576, Bill calls the Squawk routine

```
2576 INK og: BEEP os/oj, VAL "40": RETURN
```

As discussed above the print style menu, ps.C1 is LOADed as a SCREEN$ string. It's contents should be printed below:




```
 8001 LET it=oo: LET com=oo: LET
exp=oo: LET und=oo: LET scrp=oo
 8002 RANDOMIZE USR ml: LOAD
"ps.C1"SCREEN$ : LET c-oe+ps: PRINT AT
of,ot;" ";AT og,ot;" ";AT oh,ot;" ";AT
oi,ot;" ";AT c,ot;"@"; AT os,og;lx;"
";AT os,op;tb;" ";AT ot,og;qq;" ";AT
ot,op;11;" "; AT ok,oc;(" " AND
scrp=oo)+("@" AND scrp=oa);AT ol,oc;("
" AND e xp=oo)+("@" AND exp=oa);AT
om,oc;(" " AND it-oo)+("@" AND it=oa)
JT on,oc;(" " AND und=oo)+("@" AND
und=oa): LET px=ps: LET xo=l x: LET
px=ps: LET 1o=11
 8003 GO SUB sq: GO SUB il: IF z=oo OR
z<oi THEN GO TO VAL "8003"
 8004 IF z=oi OR z=oo THEN GO TO VAL
"8114"
 8005 IF pr>oa THEN LET lx=(84 AND
ps<ob)+(VAL "98" AND ps=ob)+( VAL "126"
AND ps>ob): LET qq=INT (lx/ob+oa/ob)
 8006 IF pr=oa THEN LET lx=(VAL "80"
AND ps(ob)+(VAL "96" AND ps nob)+(VAL
"120" AND ps=oc)+(VAL "137" AND ps>oc):
LET qq=INT 1x/ob+oa/ob)
 8012 IF pr=oa AND z=oe THEN LET
serp=NOT scrp: GO TO VAL "8002"
 8014 IF pr=oa AND z=of THEN LET
exp=NOT exp: GO TO VAL "8002"
 8016 IF pr=oa AND z=og THEN LET it=NOT
it: GO TO VAL "8002"
 8018 IF pr=oa AND z=oh THEN LET
und=NOT und: GO TO VAL "8002"
 8020 IF z<oe THEN LET ps=z
 8021 IF pr=ob THEN LET lx=(VAL "84"
AND ps=oa)+(VAL "98" AND ps=ob)+(VAL
"124" AND ps=oc)+(VAL "137" AND ps=od):
LET qq=INT (lx/ob+oa/ob): GO SUB VAL
"8026": GO TO VAL "8002"
 8022 IF pr=oa THEN LET lx=(VAL "80"
AND ps=oa)+(VAL "96" AND ps=ob)+(VAL
"120" AND ps=oc)+(VAL "137" AND ps=od):
LET qq=INT (lx/ob+oa/ob): GO SUB VAL
"8026"
```

```
 8024 CLS : PRINT AT oj, oc "One Moment
Please-"''TAB oc;"Printer is setting. .
.": GO SUB mt: GO SUB VAL "8050": BEEP
oa/od,zo: GO TO VAL "8002"
 8026 LET ma=INT (oa/ob+lxllo/xo): GO
SUB VAL "8028": BEEP oa/ob, ov: RETURN
 8028 CLS : PRINT AT oj, ob;"Key in
Line Length"''TAB ob;lx;"=Max
 ";ma;"=Match Margins": INPUT "Input
Line Length ";11: LET tb=INT ((1x-
ll)/ob+oa/ob): CLS : RETURN
 8030 REM * The Dot Matrix Printer
Control*
 8031 IF pr<>oa THEN RETURN
 8034 GO SUB bu: OUT po.os: GO SUB bu:
OUT po,zo: GO SUB bu: OUT po,VAL "119":
GO SUB bu: OUT po,oo: GO SUB bu: OUT
po,zo: GO SUB bu: OUT po,VAL "87": GO
SUB bu: OUT po,oo; GO SUB bu: OUT po,zo
GO SUB bu: OUT po.VAL "45": GO SUB bu:
OUT po,oo: GO SUB bu: 0 UT po;zo: GO
SUB bu: OUT po,VAL "53"
 8036 GO SUB bu: OUT po,VAL "27": GO
SUB bu: OUT po,VAL "120": GO SUB bu:
OUT po,oa: GO SUB bu: OUT po,VAL "27":
GO SUB bu: OUT p o,VAL "107": GO SUB
bu: OUT po,oo
 8038 IF ps=oa THEN GO SUB bu: OUT
po,zo; GO SUB bu: OUT po,t8
 8040 IF ps=ob THEN GO SUB bu: OUT
po,zo: GO SUB bu: OUT po,VAL "77"
 8042 IF ps=oc THEN GO SUB bu: OUT
po,zo: GO SUB bu: OUT po,VAL "103"
 8043 IF ps=od THEN GO SUB bu: OUT
po,zo: GO SUB bu: OUT po,t8: GO SUB bu:
OUT po,zo: GO SUB bu: OUT po,op
 8044 RETURN
 8052 IF exp=oa THEN GO SUB bu: OUT
po,VAL "27": GO SUB bu: OUT po,VAL
"119": GO SUB bu: OUT po,oa.
 8054 IF it=oa THEN GO SUB bu: OUT
po,VAL "27": OUT po,VAL "52"
 8056 IF und=oa THEN GO SUB bu: OUT
po,VAL "27": GO SUB bu: OUT po,VAL
"45": GO SUB bu: OUT po,oa
 8058 IF scrp=oa THEN GO SUB bu: OUT
po, VAL "27": GO SUB bu: OUT po, VAL
"120": OUT po,oa: GO SUB bu: OUT po,
VAL "27": GO SUB bu: OUT po,VAL "107":
GO SUB bu: OUT po,od:
 8060 RETURN
 8080 IF IN 127=253 THEN GO TO bu
 8082 RETURN
```

Runing QPC on a PC

by Robert Hartung

When the QXL Gold card was advertised, I placed an order that never materialized because the project was dropped for the QXL 2, which I felt was too pricey for what I wanted to spend to stay in the game. However, when Jochen Merz, *et al*, came up with the QPC software emulator for the QL, I ordered one from him. By the way, the DM/dollar exchange rate of $1.725 premium per DM as I write this, makes the cost quite reasonable, at less than $140 including delivery.

When it arrived, after carefully reading the rather sparse manual (38 pages on the included SMSQ/E operating system and 16 pages of QPC-specific info) I felt confident enough to install the program on the hard drive. Since I had already made up a boot floppy disk for some programs that I was running on my PC under IBM DOS 7.0, I needed only to add another MENUITEM to the CONFIG.SYS and AUTOEXEC.BAT files to boot DOS from this disk and then load QPC from the hard drive. (MS DOS supplied with Windows 95 has an almost identical MENUITEM capability.) Once QPC is loaded, the DOS boot floppy can be exchanged for a QL or QPC one, as the DOS file is not called for again until an exit is made from QPC by keying CTRL SHIFT SCROLL-LOCK.

As noted above, my next challenge was to try to get my old QL Trump Card system running long enough to transfer my 5 1/4" data disks to 3 1/2" ones that would work with the single floppy drive now standard on all PCs. I could not even get to the F1/F2 option-screen display.

Since I had noticed at times before that a sharp rap on the QL case near the RESET button sometimes would get it to boot up, I thought it *might* be that some fretting (oxidation) had occurred on the contacts of this momentary switch. I depressed the button and, using the thin extension tube on a spray can of TV tuner/contact cleaner, I soaked everything with the cleaner. While it was still wet, I snapped the button about 20 times. When I tried booting up again -- voila! Everything was working and, knock on wood, has continued to work ever since. Unless it was an absolute coincidence that the spray hit something else, like a cracked trace, faulty solder connection or IC socket, what a cheap fix for the frustration I had put up with for years!

Feeling I was on a roll, I attacked the next challenge of replacing one of my two 5 1/4" quad drives with a 3 1/2" TEAC FD235HF that I had bought a couple of years ago. This is a jumper-configured type that is no longer made but may still be found in some surplus outlets — all the new floppy drives depend on the computer drive-controller to sort out the configuration. I had bought a 5 1/4" to 3 1/2" cable adapter kit (available from Frank Davis) about the time I bought the drive, and after some trial-and-error experimentation with the jumper settings, I successfully FORMATted my first 3 1/2" disk on the QL. NB: From all documentation I have read, while wrong jumper settings or even reversing the data cable adapter seems not to harm anything, if anyone tries this at home **make absolutely**

sure the power cable connections are correct. Otherwise, it may fry the drive circuitry and/or the power supply.

Four boxes of floppy disks later, and after encountering several files that had been corrupted by my QL crashing from time to time over the years, I had made WCOPYs of all my programs and everything I had ever done that I wanted to try using with QPC. using with QPC. Overall, I am very pleased with the enhanced capability of QPC that includes all the commands of SuperBASIC, Super Gold Card, SBASIC, SMSQ/E, and Toolkit 2 which installs automatically. It runs at an excellent speed with my IBM/Cyrix 5X86 CPU.

I should note, however, that QPC manual to the contrary, while my new QL drive happily did 1440-sector formats/reads/writes on a couple DSHD disks I tried on it, QPC would not recognize them as QL disks, but QL or QPC-formatted DSDD disks work fine on both. QPC will format DSHD disks to 2880 sectors on my HD PC drive, which my QL Trump Card of course will not recognize but a Gold Card system would.

Another anomaly I encountered with QPC and my 104-key Windows 95 keyboard appears similar to what 131 REN keyboard IF users have reported with sons: keyboards, and that is that some keys do not produce their respective characters. On mine, SHIFT 2 produces ", \ gives #, " gives @, SHIFT \ gives (tilde), CTRL SHIFT \ gives | , and SHIFT 3 gives the pound symbol. So far, I have not discovered any keystroke or combination that produces the back-slash V

When writing a program that requires using \ to produce a line-feed in a display or print-out, the ALTKEY function can be used. First, HOT - GO must be entered to activate ALTKEY. (HOT - GO also enables returning the last keystroke sequence used by keying ALT ENTER together as on the QL). Then entering ALTKEY "#", CHR$(92) will produce \ whenever ALT and the PC \ key are pressed. This and other ALTKEY definitions may be SAVEd as a DO file if desired. With a disk in FLP 1, for my keyboard definitions I entered the following as a direct command: OPEN NEW #7, KEYS:PRINT #7,"HOT GO ":PRINT #7, "ALTKEY '#', CHR$(92)":PRINT 47, "ALTKEY CHR$(39), CHR$(34)":PRINT #7,"ALTKEY '3','#':CLOSE. After ENTER creates the file KEYS on the disk, VIEW KEYS will display the routine and DO KEYS will activate it. Now ALT \ produces \, ALT produces " and ALT 3 produces #. Note that CHR$(92) is used to define the \ character, and using CHR$(39) and CHR$(34) allows both ' and " to be properly nested in the same PRINT "string".

Speaking of printing, in order to use a parallel printer with the parallel IF driver provided with QPC, the command in the DOS AUTOEXEC.BAT file that calls for QPC to load should read: QPC-P:1 . This causes QPC to look for parallel port LPT1, which is the default PC printer port. QL programs such as the PSION suite require some slight changes. With QPC loaded and running, and the program disk in FLP1, enter LRUN INSTALL_BAS and key the space-bar to select PARALLEL. Highlight the driver file to be edited. Key F2/EDIT to change the PRINTER_DAT file so the line for printer PORT shows PAR as the one that is being selected. Key F5 to install and save this edited driver back to the disk. This PRINTER_DAT file may then be used with XCHANGE by doing a WCOPY of it to RAM1_ and then, with the XCHANGE disk inserted, enter the command line:

WCOPY RAM1_PRINTER_DAT TO FLP1_ XCHANGE_DAT. An alternative for programs that were written for the old serial-to-parallel printer IF adapter is to simply place a PAR_USE SER command at the start of their respective boot routines.

State court agrees that nose is part of the body

PHOENIX (AP) — Yes, a nose is a body part, a state court has ruled in upholding a man's conviction of aggravated assault on his girlfriend.

Ruling in a case from La Paz County, the Court of Appeals on Thursday rejected Jorge Tiscareno's argument that a broken nose is not a "fracture of any body part" as specified in the

Noyes' opinion cited a dictionary definition that said a "fracture" in a medical context involved the breaking of a bone or cartilage.

That fits what happened in Tiscareno's case, Noyes wrote.

A medical technician testified that the victim's face was swollen and discolored, she was bleeding from a cut on her head

Although I have a 1.3Gb hard drive on my PC, I added a ZIP drive so I do not have to take up hard drive space for storing data files. Other removable-disk drives are available that are faster and have larger capacity, but I bought the ZIP drive for less than $100. My ZIP disks cost me about 12¢ per megabyte, or about 4.8¢ per megabyte if used with Stacker 4.0, which gives a nominal capacity of over 248 Mb per disk. Those accustomed to the space-conserving programming used with Sinclair-based computers are likely to be amazed at the sheer size of Windows 95 programs that can quickly fill a hard drive. One that came pre-installed on my PC hard drive takes up 150 Mb by itself.

The hard drive format provided by QPC requires that a WINchester partition be reserved for WIN files so, rather than using my hard drive for WIN partition(s), I am installing them on ZIP disks also. My four hard drive partitions are C, D, E, and F, so each 100 Mb disk in the ZIP drive is seen by the PC as drive G, and by QPC as WIN5_. The "formatting" of a WIN partition actually creates a huge DOS file with a driver called QXL.WIN, which can coexist on the same disk with other DOS files. Allowing for the overhead required for this file and driver, about 95 Mb is the maximum available for a WIN partition on a 100 Mb ZIP disk. Be prepared to wait over an hour for a partition this size to be done. If Stacker 4.0 is used to create a compressed ZIP disk before doing a FORMAT WINn, the WIN partition on it may be up to about 240 Mb in size, or proportionately less if room is also being reserved for DOS files.

How to Hack on The ZX Spectrum

Les Cottrell

A complete guide to creating POKEs on the Spectrum, featuring full examples. Devised and written by:

Richard P. Swann

NB: This document was originally intended to be printed in **Your Sinclair** magazine. Downloaded from the Internet by Les Cottrell.

Part 1

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What You Will Need

If you want to use this book successfully, you will need the following:

An understanding of Spectrum BASIC. If you are total beginner, you will almost certainly find this book too complicated, and hence useless to you. If you can understand most of the Spectrum manual, then you should be all right. If you don't understand a word of the section on using +3 DOS in machine code in the +3 manual, don't worry, 'cause I don't either!

A disassembler or a monitor program. You can, in theory, hack anything without one of these, but in practice, it would be impossible for a beginner, and next to impossible for someone experienced. My personal choice is Hisoft's DEVPAC, but if you have the programs STK and 007 Disassembler (which were on the cover tapes of YS #75 and #77), that'll do fine for this book.

Some games to hack. Obviously business software is out of the window because it's illegal to hack it, and you don't need to anyway. Strategy and adventure games are pretty unlikely to demand a POKE (although it's possible, and I'll show you how I hacked an adventure later on), so you're left with arcade and arcade adventure games. Most of the time you'll want to find infinite lives and/or energy, but there are always exceptions. This book concentrates on games that you're likely to have, which are games which have been on magazine cover tapes, or bestsellers.

Patience and determination. This is the most important thing of all. Finding POKEs is challenging without any knowledge of how the program works, or even a knowledge of the language it's written in! So be prepared to do some serious THINKING!

A Multiface or other "magic box" device. This is not essential, but it is extremely useful, and a few sections in this book require you to have one (but as few as possible, I might point out!)

GLOSSARY

Breakpoint — An instruction put in by a disassembler which will return control to it when it is executed. Also something to do with tennis.

Crack/cracking — Writing a routine or executing some code which will get round some element of a protection system, enabling the user to put a POKE into the game.

Crash An undesired effect which the programmer or user did not intend to happen. Classic example is the computer resetting itself to give the old "(C) 1982 Sinclair etc., etc.", or a whole load of flashing squares. Also a now defunct computer magazine.

Decrypter — A short program contained in a protection system which, when run will change garbage into RUNnable code. You need to crack a decrypter to write a hack for it.

Endless loop — The Multiface equivalent of a breakpoint, put in hacking a protection system or doing a stack trace. The computer will keep executing the same code over and over again, indefinitely, unless the Multiface button is pressed. See also endless loop (ho ho ho!)

Garbage — A block of machine code which does not make sense to a human. The computer will attempt to process it, but will almost certainly crash. Also what the dustmen collect in America.

Hack — A self-standing program which when run will load a game and activate certain cheats. Also the act of getting round a protection system. (See also crack). Also a lot of anonymous people from Scotland.

Headerless loader — A loader which does not contain the first "header part" of a file specifying it's name, length etc., but has it ready built into memory. This makes the program harder to hack.

Interrupt — Small program which occurs every 1/50 of a second, regardless of what the computer is doing.

Loader — Any program which reads a file off tape into memory, and executes it. This may consist of simple BASIC commands, a headerless loader, a turboloader or even a protection system.

Operating system — The built in program into the computer to deal with all the basic things like reading the keyboard and loading software. This is BASIC in the case of the Spectrum. Most protection systems deliberately confuse the operating system or lock you out of it.

Patch — Replacing a bit of code with something designed to hack it. This patch may consist of a jump elsewhere in memory, or a breakpoint. Also something that pirates wear on one eye.

POKE — The process in which a single byte of memory is changed. Originally, games were hacked by one or two

POKEs.

Protection system — A block of code which tags on the front of a game's loader and prevents anyone from accessing the code it is protecting. At least, that's what it's supposed to do!

Trace — Looking through a block of code with the aim of finding something specific (such as an infinite lives POKE). This may be forwards, backwards, interrupt or stack trace.

Turboloader a loader which loads in a file off tape at a faster speed than usual. This speeds up loading. The turboloader may be hidden by a protection system.

PART ONE - The Basic Idea

Before we get down to some serious hacking, it will be a good idea to know what we are looking for. Okay, I know that some of you may think that this is pointless, but if you don't know what you're aiming at, you'll never get anywhere.

Basically, we are going to examine a program, and change it so that certain instructions are altered so that the game becomes more easier to the user. This may be in the form of infinite lives, infinite energy, immunity, infinite bullets etc.

The only way we can hope to do this is to understand what is going on in the game. And because most games are written in machine code, we're going to have to understand that as well. Please don't be put off by the thought of learning a new language; in fact you need know very little machine code knowledge to hack most games.

To start with, we'll just look at infinite lives. Lives are normally a small number, between 3 and 9 (although some games may have more), and the common thing with all games that have lives is that somewhere in the game, the amount of lives are set as a definite number, and somewhere else, the amount of lives goes down by one. In order to get infinite lives, we would have to remove the command in the program which decreased a player's lives.

You probably have and idea about how a lives system would work in BASIC. Say if, for argument's sake, a BASIC game had three lives, you would expect to see something like...

```
100 LET LIVES=3
```

...contained in the program. Then, a bit further on, you'd expect to see...

```
500 LET LIVES=LIVES-1
```

In order to get infinite lives, we would simply remove line 500 altogether and RUN the program.

A similar idea appears in machine code, but the way it's done is slightly different.

For starters, machine code doesn't have any variables! You might therefore wonder how on earth the computer can store anything. In actual fact, the computer can store information anywhere in RAM, as you may well know, and this is exactly what happens in machine code.

In Chapter 24 (The Memory) of the Spectrum manual, there's a detailed description of the Spectrum's memory. The best way to visualize the memory, I think, is to imagine 65,536 boxes, each one containing a piece of paper with a number from 0 to 255 written on it.

Therefore, it is no problem for a computer to store the number of lives in machine code, since it can just put it as a byte in a memory location, leave it there, and come back to it later.

You should be aware that in machine code, commands are also stored in memory locations as bytes; so if you get commands and data mixed up in memory, the computer could easily try and execute the data, thinking it's a command, and trying to execute it. Unlike BASIC, there are no errors in machine code, and the computer can execute anything it finds, so in this case you will get a crash. So most programs keep program data and program commands separately.

Anyway, in order to store three lives in machine code, we'd put the number 3 in a memory location. Unfortunately, we can't do this straight away in machine code, and we can only do it by using what are called registers.

Registers store information in the same way as memory locations. They are bit more versatile though, as you can perform calculations with them. All the same, they are not the same as variables in BASIC, and are more like a pair of hands used for counting.

The main register we'll look at for now is the A register (sometimes called the accumulator), which can store a single byte and have sums done to it.

What we would do to store the number three in a memory location is to put the number 3 into the A register, then put the contents of the A register (which are of course, 3) into a memory location.

The actual way of writing this in machine code is:

```
LD A,3
LD (#8000),A
```

Actually, strictly speaking, the above isn't machine code at all! Machine code as the computer sees it is, as I explained earlier, consists of many bytes in memory, which are pretty meaningless to humans. So some people invented assembly language (which is what the above is), where each instruction carried out by the computer is given a name (called a mnemonic).

The above program features one command used in two different ways. The command is LD, which is pronounced "load". This has nothing at all to do with loading a program from tape. It basically is a transfer of information from one place to another. The comma in the instructions is read as "with", so the whole instruction is read as "Load A with 3". It now seems obvious that this instruction is putting the number 3 into the A register.

The second command is also LD, but the way its used is slightly different. The brackets mean "the contents of", so the whole instruction is read as "load the contents of #8000 with A". (Think of a bracket as a byte in memory, where everything in the bracket is part of that byte) Therefore, this instruction would make the computer take whatever value is in the A register, and store it in memory location #8000 (of course, it could be any other memory location as long as it is unused).

So the overall result of the two commands (normally called operations) would be to put the number 3 in memory location #8000.

Congratulations! You've just learned the first way to

hack. Clearly, if in a real program, we found these operations, we could change the LD A,3 to something like LD A,100 to get 100 lives!

Before we can do any "real" hacking, I'd better discuss how "real" machine code is written.

Every machine code instruction contains and opcode, and some instructions need an operand. An opcode is simply the instruction the computer is going to do. Every number from 0 to #FF correspond with a specific opcode. You can find a complete list of opcodes in Appendix A of your Spectrum manual.

The operand is used whenever there is ambiguity over something. If you look in Appendix A of the Spectrum manual, you will see that the opcode #3E is "LD A,n". "n" in this case can mean any single byte number i.e.: a number from 0 to 255. But it's possible to put any number within this range e.g.: LD A,3 or LD A,#40 or LD A,#80 etc. The computer has to somehow know what data it is dealing with, and this is where the operand comes in. In machine code, whenever the computer comes across the opcode #3E, it looks at the byte after the opcode, and assumes it's the data needed. So, if the computer came across the bytes #3E and #40 in succession, it would put the value #40 in the A register. In this example, #3E is the opcode, while #40 is the operand. After executing the instruction, the computer goes to the byte after the operand, and starts running code from there.

In the second instruction of our example, the opcode is #32, i.e.: "LD (NN),A". The ambiguity is in the address where we are going to store the value of the A register. In this case, the operand takes up two bytes, hence the "NN", which again comes after the opcode. You should note that this is an address in memory, and is always referred to as two bytes. So you might expect the machine code equivalent of LD (#8000),A to be #32 #80 #00. Except it isn't! For some odd reason, in machine code, all two byte operands are written the wrong way round, so the actual machine code equivalent of LD (#8000),A is #32 #00 #80. There is no hard and fast reason why, it's just vitally important that you remember this.

In short, the program of the previous page is written as...

#3E #03 #32 #00 #80

...which takes up five bytes.

Not all instructions require operands. For example, DEC A (short for "decrease A", which subtracts one from the A register) has no ambiguity at all. There is only one way to decrease the value in the A register, so the instruction only takes up one byte, in this case #3D. No operands are needed.

Right, time for your first bit of hacking! From what we've discussed above, we want to find, somewhere in the game's code, a set of instructions which put the number of lives into a byte in memory. So if the game had three lives, we could expect to see the bytes...

#3E #03 #32

...unfortunately, we don't know where in memory the number of lives is going to go, so we can't work out the operands for the second instruction (#32). But in fact, we don't need to, for if we find the above sequence of bytes in a program, we can simply examine the two bytes after this sequence to find out where in memory the number is being put.

So let's put this into practice and hack an actual game. For convenience I've chosen Sweevo's World, which featured on a YS Cover tape Issue 60 December 1990. I would have chosen a more recent game, but they all have some form of protection on them. Besides, obtaining infinite lives is relatively easy.

Getting the game in memory without it running is easy. If you've typed out a fair few POKEs in your time, this will be no problem. Just MERGE the BASIC loader and put a STOP statement before the RANDOMIZE USR statement. Then RUN the program and wait for it to load, until the OK message appears.

Now we have the game in memory, we can load STK and examine it. You have to be a bit careful here, because STK occupies 6K of the Spectrum's memory. Although it can be anywhere in memory, it possible to overwrite the all-important lives code in the game with STK, so we have to be careful. The best places to put STK are in the graphics, map or sound data. There's no easy way to tell where this is, so you'll have to try pot luck. But it helps if you know where the game loads to, so load up STK at any address, and press J and then Caps+9 to read in a header a couple of times. Then read the headers of the three blocks of code after the BASIC. They are:

Bytes: S 4000,1B00
Bytes: M FB90,043D
Bytes: P 60E0,82B0

The first block is the loading screen. The second block is in actual fact the game's music (but you wouldn't be expected to know this), and the third block is the actual game itself. Therefore, we can put STK anywhere above (60E0+82B0)=E390. For argument's sake, let's put it at EA60, which is 60000 decimal. When we've finished hacking, we can reload "Bytes: M" and run the program. Load up STK (after having stopped the BASIC and returned with a STOP statement) at address 60000. **5244**

Now at last, some hacking. Bearing in mind that you start the game with five lives. Press Q to search for a byte. Enter the address we want to start searching at as 60E0, because that's the start of the game. Now type in the following:

#3E #05 #32

These are the search bytes we described on the previous page. Keep pressing N for "next" until all of the memory has been searched. You will get the following addresses: 905C and EEDC. You can ignore the one at EEDC, because it's in the middle of STK and outside the main game code, so that leaves just the one at 905C. Press E for edit and type #905C. You'll see the following bytes:

3E 05 32 1A 61

So this tells us that the computer puts the number five in box number 611A (remember that 2 byte numbers are reversed!) Now to hack the game, we simply change the number 5 at 905D to any number of lives we want (the maximum is #FF).

Now, get out of STK, reload the "Bytes: M" file and RANDOMIZE USR 24800 (the original command in the

BASIC), and hey presto - you will have whatever amount of lives you wanted!

All that remains to do is to write a proper hack for it. 905D is 36957 in decimal, so your hack would be something like "MERGE the BASIC loader, and insert POKE 36957,n before the RANDOMIZE USR statement, where 'n' is the number of lives."

And it's as simple as that. If you can understand what we've done so far, you're doing well, so stick at it.

Any unprotected game like Sweevo's World is hacked in the same way, except you will probably have to reload STK to a different address, and you may find that in your search for #3e #32, you may come across several locations in memory outside STK that have this pattern. In this case, you'll have to use trial and error to work out which one holds the number of lives.

It is, of course, perfectly possible for you now to find 'number of lives' POKEs for any unprotected game under the sun, and in the early days of Spectrums ('82-'84), this would have been perfectly adequate. Of course, what your really need is the real nitty gritty - INFINITE lives. This is done by taking things just a step further.

What you basically need to do is find out which memory location the number of lives are being put in. Then you need to search for parts of the program which put the value of that memory location in a register, subtract one from it, and put the new value in the register back. Then you have to rewrite the code slightly so that the computer "forgets" to decrease the value in the register, and simply puts the old value back in again.

Coming back to Sweevo's World, we already know that the number of lives are stored at memory location 611A. I normally refer to this memory location as the "lives store" for obvious reasons. All we have to do is search for all the occurrences of the address of the lives store. So, search for #1A,#61, and you will find it referred to at the following addresses:

779B 8160 81A9 905F EEDC

You can ignore the one at EEDC because it's in STK, but you can also ignore the one at 905F, since that's part of the lives setting routine we discussed earlier. So the routine to decrease the number of lives must lie at one of the other locations.

You should note, that any instruction that involves the lives store will begin at the byte before, because 1A and 61 are two byte operands (see page 3 for more about operands).

So for starters, press E to edit an address and type in #779A. You'll see the following:

779A - 3A 1A 61 C3 61 99

If you look up 3A in Appendix A of your Spectrum manual, you'll see it corresponds to the instruction LD A,(NN). This is simply a reverse of the LD (NN),A instruction, in that the value of a memory location is put into the A register. This is important, because subtraction of any sort can only be done in a register, and usually in the A register.

After the computer has executed the three byte instruction 3A 1A 61 (which is LD A,(611A in mnemonics), it executes the instruction C3. If you look up C3 in Appendix A of your Spectrum manual, you'll see it corresponds to the instruction JP. JP is short for "jump", and is in a sense like GOTO in BASIC. What the computer does is to jump to a location in memory. As you can see, there is ambiguity as to where it is going to jump, so we need a two byte operand. Like the ones me have met before, the bytes are written the wrong way round. So C3 61 99 means JP 9961. In this case, the computer would go to address 9961, and start executing code from there.

It is possible that the code to decrease the number of lives is at 9961, but is unlikely, because it pointless to have to jump to a completely different area of memory. So we'll leave this part of memory, and go onto the next instruction, at 8160. Press EDIT to leave the editing procedure, and edit address 815F. You'll see the following:

815F - 21 1A 61 35

21 is the instruction LD HL,NN. HL is another register like A, but its main difference is that it can store two bytes at once. So LD HL,NN requires a two byte operand, whereas LD A,N only requires one. So here the instruction 21 1A 61 means LD HL,611A. The next instruction, 35 doesn't need any operands, and is the instruction we've been looking for. 35 means DEC (HL). You've already come across brackets meaning "the contents of", so as you might have guessed, DEC (HL) decreases whatever is at the memory location with the same number as HL by one. In this case, we know that HL is 611A, because we've just set it in the last instruction. So DEC (HL) will decrease the value of whatever is in memory location 611A by one in this case.

But we already know that the number of lives is stored at memory location 611A. So clearly DEC (HL) is going to decrease the number of lives by one!

What we need to do to make an infinite lives POKE is to somehow overwrite the DEC (HL) so that the computer doesn't decrease the number of lives. There are two things that can be done. Firstly the address containing DEC (HL) can be replaced by 0. The number 0 relates to an instruction called NOP. NOP is short for "No operand", and in short means absolutely nothing! When the computer encounters the instruction NOP, it will do nothing and execute the next instruction. So if we overwrite DEC (HL) with NOP, the computer won't decrease the number of lives, but do nothing instead. The vast majority of POKEs have the format POKE address, 0 for the reasons described above.

If you run Sweevo's World changing the DEC (HL) to NOP, you'll find you only get one life instead of five! In this case, you should overwrite the DEC (HL) with OR (HL). OR (HL) is a single byte instruction, B6. Don't worry about what it does, because it isn't important. What is important is to remember to do this if you only get one life.

Rerun Sweevo's World, replacing the DEC (HL) with OR (HL), and you'll have your infinite lives! The DEC (HL) is at address 8162, which is 33122 decimal, while B6 is 182 decimal, so the POKE would go something like "MERGE the loader, and put POKE 33122,182 before the RANDOMIZE USR statement, RUN the program and restart the tape."

Now we've covered the rudiments of machine code involved in hacking, we can look at more detailed ways of finding POKEs.

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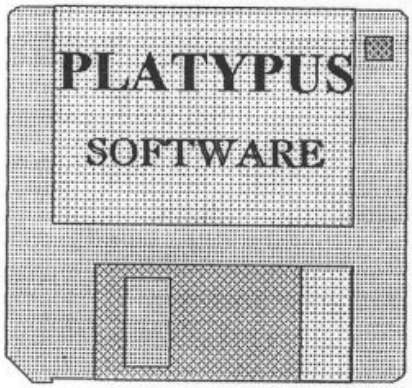

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