Micro-8 Computer User Group Newsletter
Hal Singer - Editor
Cabrillo Computer Center
4350 Constellation Road
Lompoc, CA 93436

March 28, 1976
Volume 2, Number 4

I did get this NL out in three weeks! Don't expect the next one as quickly. It's time to worry about other projects for a while.

You'll notice a motley assortment of stuff in this issue. This is partly because the input of material has gone down to virtually nothing. Guys cry that they want software but no software comes in. (With the exception of Mike 2 stuff. A Mike-2 mini-Monitor-8 with Suding TVT output was sent in and Bob Pearce has sent in a whole bunch of stuff. I'm trying to figure out how to reprint them now. Write if your interested.) I'm cleaning out the files, so the next issue may include some old stuff that got neglected.

The Computer Hobbyist - Box 295 - Cary, NC 27511

I had heard that the TCH group had published a Jan and Feb issue but subscribers in this area have heard nothing from them for months. I just received issue No. 9 and a jewel it is! They claim 2200 subscribers which is nowhere as high as it should be. No. 9 contains the first of several articles on an ultra low cost floppy disk unit, the 2nd installment on their IMP-16 construction article, and another installment on ALTRAIR 8800 interfacing. Backissues (USA) cost 65 cents and are must reading. A subscription is $6 per 12 issues (an absolute steal). If these guys had 20,000 plus subscribers like BYTE has, they could produce material that would keep you in the shop 20 hours a day. If you aren't a subscriber, subscribe now! and get on the telephone and round up at least five more guys. If a lot of people do this, it will ensure that the TCH group will have ample money to hire clerical help so that they can concentrate on writing articles. If you haven't received no. 7, 8, or 9, drop them a note with a copy of your cancelled check. I'm sure they just misplaced a part of the mailing list.

IMSAI Problem

Max L. Wymore whose letter to IMS is printed on page 2 reports that he has received a full and complete refund as of 3/23/76.

SCCS Award

The SCCS surprised me with the presentation of a trophy at the last meeting inscribed:

Southern California Computer Society
Special Award
To The
Editors And Publishers Of The
Micro-8 Newsletter
In Recognition Of Pioneering Service To
Computer Arts And Sciences
March 1976

I'd like to express my greatest appreciation to the SCCS for this award. I would also like to point out that the participants of the Micro-8 User Group that have contributed material for inclusion in the newsletter are the true recipients of this award. The Micro-8 NL would not have existed were it not for you. I'll try to get a picture of the trophy, the students, and the computer center in the next NL. Thanks again to the SCCS for this honor.

SUBSCRIPTION FORM
(Copy if you don't want to mess up NL)

☐.....Volume 1 back issues 1 thru 4 $3.50
(56 mice-type pages)
☐.....Volume 1 back issues 5 thru 12 $6.00
(186 mice-type pages)
☐.....Volume 1 combination 1 thru 12 $8.00
(the principal is on my back because we have too many boxes cluttering up the computer center)
☐.....Volume 2 issues 1 thru at least 9 $6.00

Name _____

Address _____

_____

Zip _____

Telephone No. _____
(may be published -- leave blank if you prefer)

Please also include a little note describing your equipment, plans for the future, experience, etc. Thank you.

Micro-8 Newsletter Phase Out

After a lot of careful thinking, it is time to announce that the Micro-8 Newsletter will phase out after volume 2. It appears that there is ample money to send out 9 issues and if back issues continue to be ordered, we may be able to extend it to twelve.

Many factors have contributed to this decision. I would like to think that we participated in "digging our own grave" by fostering the organization of some of the many computer clubs that have sprung up thruout the country.

In the beginning, communication with others of similar interest was essential and a national newsletter was the quickest most efficient way to accomplish this. Now there are national magazines and at least twenty local club newsletters. Guys are meeting together monthly and in some cases, weekly. This was the goal we set and we have achieved it.

Another factor is the time required. As club newsletter editors will testify, these things eat up an enormous amount of time. I have enjoyed every minute of time spent on the Micro-8 NL. I'm sure the students in my classes have gained immensely by becoming aware of what is happening in a movement that is destined to permanently change our world. One of the students learned that the stamp does not go over the return address. At the same time, the students may have been neglected to a certain extent by me devoting so much time to the preparation of the NL. If subscriber response had been in the thousands, money would have been available to hire student clerical help to reduce some of the time involved.

There are some lessons here if you expect your club newsletter to prosper: 1) Be ready to volunteer your labor. Make sure you are ready to go to the place where the editor prepares the NL. Just saying "have you got anything to do that I can take home with me" won't help since its more trouble to get something together for you than it is to do it himself. 2) Be ready to support it with cash. Printing and postage are not cheap. Printing costs for small quantities can be super expensive per copy.

What about the guy in the unpopulated area of Kansas (maybe that should have been underpopulated) that can't take advantage of local clubs? I would like to persuade the SCCS to undertake a NL reprinting service. All local clubs would continue to publish their monthly newsletters and would send to SCCS a camera ready copy. SCCS would then contract with a large volume printing house to print a monthly newsprint copy of all the club newsletters that could be sent out to all subscribers of the reprinting service. The information might be a month or two old by the time you got it but you would know what every club is doing all over the U. S.

This club information combined with the technical articles provided by BYTE, INTERFACE, MICROTREK, "73", and TCH (and PE and RE when they get around to it) will keep everyone well informed on the latest happenings in hobby computing.

MICROTREK?

Speaking of national magazines, does anybody know anything about the editor or publisher of Microtrek other than the info contained in their PE ad?

Sincerely,
Hal Singer - Editor

Bill Gates' Micro-Soft Letter

It has been interesting to follow what has happened in the aftermath of what is now called the "software flap". The most logical action was to tear up the letter and forget about it. Perhaps that would have been too easy. Maybe it needs to be treated as a learning experience for all of us in this infant field of hobby computing, both manufacturers and hobbyists alike.

The logic behind my comments smacks of the pot calling the kettle black but I think the point is still valid. It is the responsibility of the advertiser to honestly explain what the product can be expected to do and when it can be delivered and if he misleads the buyer, to adequately compensate him with corrective action.

A letter by Dr. Michael Hayes was reprinted in the Bay area Homebrew NL. He attacks Mr. Gates' marketing strategy and says nobody stole BASIC, you gave it away. "If you want monetary reward for software creations, you had better stop writing code for a minute and think a little harder about your market and how you are going to sell to it. And by the way, calling all of your potential future customers thieves is perhaps "uncool" marketing strategy!"

If you are interested in reprints of letters to and from regarding the software flap, let me know by postcard. Otherwise we'll drop it.

CABRILLO COMPUTER CENTER
4350 CONSTELLATION ROAD LOMPOC, CALIFORNIA 93436 (805) 733-3531

MARCH 15, 1976

AN OPEN LETTER TO:

MR. ED ROBERTS, PRESIDENT
MITS INCORPORATED
PO BOX 8636
ALBUQUERQUE, NM 87108

DEAR MR. ROBERTS:

ALL OF THE HOBBY COMPUTER PUBLICATIONS RECENTLY RECEIVED A SPECIAL DELIVERY LETTER WITH A MITS RETURN ADDRESS FROM BILL GATES OF MICRO-SOFT. I CERTAINLY HOPE THAT THIS LETTER WAS SENT OUT WITHOUT THE APPROVAL OF MITS MANAGEMENT. IN THIS LETTER, BILL BRINGS UP SOME DIFFICULT QUESTIONS THAT THE HOBBY COMPUTER COMMUNITY IS CURRENTLY WRESTLING WITH AND WHICH HAVE BEEN AROUND SINCE THE PRODUCTION OF THE FIRST COMPUTER.

A COMPUTER DOES NOTHING WITHOUT PERIPHERALS AND SOFTWARE. THIS IS AN OBVIOUS FACT TO ANYONE FAMILIAR WITH COMPUTERS. UNFORTUNATELY, MANY OF YOUR BUYERS ARE NOT FAMILIAR WITH COMPUTERS AND ARE AWARE OF ONLY WHAT THEY CAN READ FROM YOUR ADVERTISEMENTS. IF YOU WILL GO BACK AND RE-READ THE ORIGINAL POPULAR ELECTRONICS ARTICLES AND YOUR ADVERTISEMENTS AND ATTEMPT TO VIEW THEM THRU THE EYES OF THIS INEXPERIENCED BUYER, I'M SURE YOU'LL COME TO THE CONCLUSION THAT THIS FELLOW THOUGHT HE WAS GOING TO GET A COMPUTER FOR $395 (ORIGINAL INTRODUCTORY PRICE) THAT WOULD DO SOMETHING. ONLY AFTER HE RECEIVED THIS THING DID HE FIND OUT THAT HE WAS GOING TO NEED APPROXIMATELY $1000 TO $2000 WORTH OF ADDITIONAL HARDWARE AND SOFTWARE TO GET IT GOING. ABOUT $500 TO $700 CAN USUALLY BE ROBBED FROM THE FAMILY BUDGET BUT MORE THAN THAT AND THE HOBBYIST IS ACCUSED OF TAKING FOOD OUT OF THE KID'S MOUTHS AND CLOTHES OFF THEIR BACKS.

I'M SURE YOUR COMPANY HAD NO INTENTIONS OF MISLEADING THE COMPUTER HOBBYIST. HOWEVER, WHEN BILL GATES ACCUSES THE HOBBYIST OF STEALING, IT MAKES ONE WONDER IF IT WOULD BE REASONABLE TO COME BACK WITH A CLASS ACTION SUIT OR PETITION THE FEDERAL TRADE COMMISSION FOR MISLEADING ADVERTISING AND FAILURE TO DELIVER MAILORDER PRODUCTS AS ADVERTISED IN A REASONABLE TIME.

IT IS SAD THAT RUMORS HAVE BEEN CIRCULATING THRU THE HOBBY COMPUTER COMMUNITY THAT IMPLY THAT DEVELOPEMENT OF THE BASIC REFERRED TO IN BILL GATES' LETTER WAS DONE ON A HARVARD UNIVERSITY COMPUTER PROVIDED AT LEAST IN PART WITH GOVERNMENT FUNDS AND THAT THERE WAS SOME QUESTION AS TO THE PROPRIETY IF NOT THE LEGALITY OF SELLING THE RESULTS. THIS MAY BE A VICIOUS AND FALSE RUMOR BUT IT EXISTS. IT WOULD SEEM THAT
MITS SHOULD RESPOND BY PUBLISHING INFORMATION AS TO HOW THE BASIC REFERRED TO WAS DEVELOPED, WHO PAID FOR THE MACHINE TIME FOR THESE ORIGINAL DEVELOPEMENTS, AND SUFFICIENT DETAILS ABOUT ITS ACQUISITION SO THAT THE PURCHASER OF BASIC DOES NOT FEEL THAT HE IS PURCHASING AN ILLEGITIMATE PRODUCT ALREADY PAID FOR BY THE TAXPAYER.

WE CERTAINLY DO HAVE TO RECKON WITH THE PROBLEM OF ADEQUATELY COMPENSATING AUTHORS FOR THEIR TIME IN SOFTWARE DEVELOPMENT. THE XEROX MACHINE IS FORCING THE LAW-MAKERS TO RETHINK THE COPYRIGHT LAWS. EASE OF COPYING COMPUTER SOFTWARE IS FORCING THE SAME TYPE OF RETHINKING IN THE COMPUTER FIELD.

I HOPE YOU AS THE HEAD OF MITS WILL PUBLISH A PUBLIC APOLOGY TO COMPUTER HOBBYISTS FOR THE NAME CALLING WHETHER MR. GATES' LETTER WAS SENT WITH MANAGEMENT APPROVAL OR NOT.

SINCERELY,

Harold L. Singer

HAROLD L. SINGER - EDITOR

MICRO-8 COMPUTER GROUP NEWSLETTER

L.U.M.P.
% Andy Ehalt
115 Edgemont Drive
New Albany, IN 47150

Gentlemen:
Please find enclosed a brief resume of Louisville Area Users of Micro-Processors (L.U.M.P.). We would appreciate your placing it in your publication. We are interested in obtaining additional members and other groups with which to exchange ideas or software.
Any support you may give us with this matter would be greatly appreciated. Thanking you in advance for your assistance.

Sincerely,

Andy Ehalt, L.U.M.P.

The L.U.M.P. (Louisville Area Users Of Micro-Processors) Computer club located in Louisville, Kentucky is asking anyone interested in micro-processors to join them at their bi-weekly meetings. Present membership is approximately 30 members. We are also very interested in working with other groups or clubs for the exchange of designs or software.

We presently work with the 6800, 6502, 8080, and 8008, including one 8080 and 8008 multi-processor, with future plans including a P.A.C.E. or LSI 11; all but a few are of our own design. Our club system, being designed and built by club members, is a 6502 based system.

For information write: Steve Roberts, Cybertronics, PO Box 18065, Louisville, KY 40218 or Andy Ehalt, 115 Edgemont Drive, New Albany, IN 47150

SCOTT BERTILSON, RR2, SPICER, MN 56288 I WOULD REALLY LIKE TO GET MAY HANDS ON A COMPUTER BUT MONEY IS ONE OF MY BIGGER PROBLEMS -- AND I DON'T REALLY KNOW WHAT PROCESSOR TO GO WITH ALTHOUGH I LIKE THE 6800 (LSI-11 IS TOPS) BETTER THAN ANYTHING ELSE. I WOULD KIND OF LIKE TO GO WITH LARGER WORD SIZE AND HIGHER SPEED THAN MOST MICROS CAN GIVE. ONE IDEA THAT HAS INTRIGUED ME FOR A LONG TIME WOULD BE A TTL (SHOTTKY?) MICROPROGRAMMED PROCESSOR - YOU COULD SIMULATE (EMULATE) ALMOST ANYTHING AND TAKE ADVANTAGE OF EVERYBODY'S SOFTWARE. IT SEEMED LIKE A PIPE-DREAM UNTIL I CALLED JACK ABBOT ABOUT HIS PDP-11 COMPATIBLE MACHINE. IT TURNS OUT THAT HE IS WORKING ON A TTL MICRO-PROGRAMMABLE MACHINE WHICH WILL MICRO-CYCLE AT ABOUT 200 NS. (FAST, HUH -- JUST IMAGINE HOW IT WOULD BE USING SCHOTTKY TTL). JACK FIGURES IT WOULD EXECUTE PDP-11 INSTRUCTIONS IN ABOUT 1 MICROSEC, BUT IT COULD ALSO EMULATE JUST ABOUT ANYTHING ELSE IN THE LESS THAN 16 BIT CLASS AT COMPARABLE SPEEDS. HE HAS SOME PRETTY NEAT IDEAS LIKE TIME-SHARING THE PROCESSOR BETWEEN THE USER AND THE PERIPHERALS. THE PROCESSOR WOULD HANDLE THE USER AND TRANSPARENTLY ACT AS A PERIPHERAL CONTROLLER. (IT WOULD BE THE INTERFACE FOR ANY OR ALL OF YOUR PERIPHERALS). SLICK, HUH? I THOUGHT SO ANYWAY. HE IS STILL IN THE DESIGN STAGES ALTHOUGH HE HAS ORDERED ALL THE PARTS AND IS FAIRLY DEEP INTO CONSTRUCTION. HE IS RE-CONFIGURING IT TO A 4-BIT SLICE CONCEPT INSTEAD OF A STRAIGHT 16 BITS AS IT WAS ORIGINALLY, BUT USING THE SAME PARTS AND GENERAL DESIGN. HE FIGURES HIS PRESENT COST AT ABOUT $1000 WHICH SOUNDS PRETTY GOOD TO ME. HE IS SENDING ME SOME PRELIMINARY INFO AS SOON AS HE FINISHES HIS PAPER FOR HIS DEGREE. AT THE MOMENT, THOUGH, I AM WAITING FOR JOHN LIND TO RECEIVE HIS ALTAIR 680 FROM THE ALWAYS SLOW MITS. I PERSONALLY THINK THE SWTPC 6800 IS A MUCH BETTER MACHINE BUT THERE IS THE MATTER OF AN ADDITIONAL $100 WHICH HE DIDN'T HAPPEN TO HAVE AT THE TIME. HE HAS ALSO BEEN PUT-OFF BECAUSE OF A DESIGNCHANGE (THAT WAS TO HIS ADVANTAGE OF COURSE). HIS 680 IS TO BE MAILED OUT IN APRIL WHEN HESENT HIS ORDER LATE LAST YEAR. ONE CONSOLATION IS THAT MITS HAS APPARENTLY GOTTEN ENOUGH RESPONSE SO THAT THEY ARE GOING TO WRITE A BASIC FOR IT. I DOUBT THAT SWTPC WOULD TAKE ON A PROJECT LIKE THAT. WE ARE KIND OF INTERESTED IN PUTTING UP A PASCAL ON THE 6800. I CAN GET A COPY OF THE PASCAL COMPILER WHICH GENERATES CODE FOR THE "IDEAL" PASCAL MACHINE, A SO-CALLED P-MACHINE. ALL A PERSON HAS TO DO IS WRITE A P INTERPRETER AND RUN THE P-CODED COMPILER THRU IT. ANOTHER APPROACH IS TO RECODE THE CODE GENERATION ROUTINES IN THE COMPILER WITH ROUTINES THAT GENERATE 6800 CODE. THE COMPILER IS WRITTEN IN PASCAL OF COURSE.
SCOTT

MAX L. WYMORE, P.C.
1200 UNITED BANK CENTER
1700 BROADWAY
DENVER, COLORADO 80202

IMS Associates, Inc.
1922 Republic Avenue
San Leandro, California 94577

March 10, 1976

Gentlemen:

On approximately February 18, 1976, I placed an order with you by telephone for an IMSAI 8080 microcomputer kit to be charged to my BankAmericard account. On approximately February 20, 1976, I was advised by a telephone call from someone in your company that there was an insufficient credit balance in my BankAmericard account to cover the entire purchase whereupon I advised your representative that it was my decision to cancel the order for the microcomputer kit and requested that my BankAmericard account be credited for any amount debited.

On March 9, 1976, I received a telephone call from a woman at IMS Associates advising that my kit was ready to be shipped and how did I intend to pay for same advising that my BAC account had been debited $170.00 and whether I would send a check for the balance, pay for same with a credit card or authorize shipment COD. I indicated that I had cancelled the order by a prior phone call. She advised that I could not cancel my order and suggested I talk to a Mr. Arnie Karush who told me that I was not permitted to cancel my order, that his company had made a commitment to deliver a microcomputer kit to me and that I had made a commitment to pay for same. It was the position of Mr. Karush that he was going to hold my $170.00 and the kit in my name until such time as I paid the balance owing, authorized charge thereof to my credit card, or authorized a COD shipment of the kit.

I advised Mr. Karush that I had cancelled my order on approximately February 20, 1976, and that I expected full restitution of all charges debited to my BankAmericard account in the amount of $170.00.

If you are not, you should be aware of the consumer protection laws which provide for the rescinding of any contract to purchase with full restitution of all monies paid. See 15 U.S.C. 1635 as extended by Judicial decree in Gardner and North Roofing and Siding Corporation v. Board of Governors of the Federal Reserve System et al, 464 F.2d 838 (1972) and others. Title 15, 1635(b) of the U.S. Code provides that "When an obligor exercises his right to rescind under subsection (a) of this section, he is not liable for any finance or other charge, and any security interest given by the obligor, including any such interest arising by operation of law, becomes void upon such a rescission. Within ten days after receipt of a notice of rescission, the creditor shall return to the obligor any money or property given as earnest money, down payment, or otherwise, and shall take any action necessary or appropriate to reflect the termination of any security interest created under the transaction."

Mr. Karush's insistence that mine was a special order is completely without foundation since my order was for the standard kit and no assembly was involved. Unless I receive full credit against my BankAmericard account within ten days as provided for in the Commerce and Trade section of the U.S. Code, 15 U.S.C.A. 1635(b), I will be forced to take legal action as necessary for the recovery of illegally held funds.

Very truly yours,

Max L. Wymore

MLW:sr
CERTIFIED MAIL
RETURN RECEIPT REQUESTED

M.D. RIVERS, 28 LEYFRED TERRACE, SPRINGFIELD, MA 01108 HAS SOME COMPUTER GRADE POWER SUPPLIES AVAILABLE THAT WERE OBTAINED IN AN INSURANCE SALVAGE DEAL. TWENTY UNITS ARE AVAILABLE, ALL NEW AND UNUSED. EACH SUPPLY HAS THREE OUTPUTS: 5 VDC @12 A, 15 VDC @2.8A, 15 VDC @ 2.8A, FILTERED, REGULATED, AND VARIABLE. PRICE IS $100 PLUS 10% FOR POSTAGE AND HANDLING WITH 25% OF IF ORDERED BEFORE MAY 1ST. THEY ARE SUPPLIED WITH A MONEY BACK GUARANTEE IF RETURNED IN GOOD CONDITION.

CARL E. HEIMERDINGER, WB4BIG, 1325 GLADDEN DRIVE, LOUISVILLE, KY 40218 IS BUILDING AN 8008 SYSTEM WHICH HE HOPES TO FINISH SOON. IT WILL HAVE 4K OF MEMORY, CLARE-PENDAR KEYBOARD AND A TELETYPE FOR OUTPUT. HE IS GOING TO USE THE SYSTEM IN CONNECTION WITH AMATEUR RADIO TTY AND HOPEFULLY SOME SATELITE TRACKING IN THE NEAR FUTURE.

Dear Mikers:

Delighted to receive a sample of your NL. Enclosed are bucks for a subscription. I'm a programmer on a 370/145 installation here in Baghdad-by-the-Bay, just getting interested in micros. I plan to buy a kit in a coupla months, but I need some good advice on what kind would be best for extensive real-time control appls.: answering the phone, running my tape deck and TV, forwarding phone calls, handling a modem or two, mixing drinks etc. Is there a user language handy for such stuff? Also, I'd like to try writing interpreters for APL and LISP; I find BASIC too inelegant and low-level.
I'd love to look at the rigs of any mikers in San Fran, if they exist. If anyone will lend me their first 4 issues of Byte to copy, I'll make them copies for free: I have unlimited free access to an IBM copier.
If you did not exist, you would have to be invented!

Regards,
Shad
Shadrack Black
1800 Market St., #123
San Francisco CA 94102

END. TELG. LEGGE / LEXMETAL — TEL. ADD. S. PAULO
R. B. LEGGE
CONSULTOR COMERCIAL E INDUSTRIAL
BUSINESS AND INDUSTRIAL CONSULTANT
PO Box Nº 0.069 e
CAIXA POSTAL 7879
AV. ALVARO RAMOS, 1142
01.000 SÃO PAULO - BRASIL

I am specially interested in converting an IBM Selectric, if possible the Model 72 which can be had in good condition, used, down here at a relatively inexpensive price - for use as I-O device with the Altair 8800. I'd be grateful to hear from anyone who can help me on this - giving me data on the IBM Selectric "Code" - how to convert the code to ASCII (I have in mind using a Re-prgrammable PROM circuitboard, together with a UART) so that all data bits to and from the Altair 8800 would go back and forth to the Selectric in ASCII form, being converted to the IBM code prior to entering the machine terminal-strips and vice-versa. I already have a Southwest Technical Products ASCII Keyboard and ASCII encoder which I plan to use in this hookup.

I'd like to know where I can purchase the IBM 72 Service Manual, and generally speaking have any criticisms or help anyone can give me.

Thanks in advance for any help you can give me. Sincerely, Rob Legge

address for reply: PO Box Nº 30.069 / Avenida Alvaro Ramos Nº 1142 / 01.000 São Paulo, Brasil. South America.

(By Air Mail, please!)
OVER

Victor A. G. Murrell, 11229 Wright Rd., Lynwood, CA NE 1-1846 WB6HWN wants to know if anyone has a Hal keyboard for sending Morse code. He is teaching a class in advanced code for Amateur Radio and would like to speak to someone that owns one or has used one, or has one for sale, because he needs to know whether it would do the sort of thing he needs to make special instruction tapes.

March 8, 1976

Dear Hal and Group,
Thank you for the sample issue of your NL. I'm convinced that its my kind of NL and enclose $6 for the next six issues. Although I do not yet own a computer I am keenly interested in the subject and am currectly in the information gathering stage. I am trying to learn as much about the subject as I can so that when the time comes to buy a computer I can make an intelleigent choice and know enough to enjoy and use it. I think that I will take advantage of the drop in prices to allow the market to stabilize, save adequate funds, accumulate knowledge, and try to convince my wife of the worth of a computer (anyone have any convincing arguments?) I have only built one kit and do not have much knowledge of electronics. I have programmed in BASIC, Fortran, and PL/1. I occasionnly have use of the computer at work and program in BASIC for our DEC PDP 11/35 and in Fortran for the IBM 1130. I am interested in computer games and computer graphics and would like as a long range goal to have a working space war system.

Sincerely,
Edwin P. Kawasaki II
KAW PASTURES
292 Collamer Road
Hilton, New York 14468

MIKE'S T.V. REPAIR
MICHAEL G. SCOTT
BOX 105 • KIRON, IOWA 51448
(712) 675-4255

Dear Hal: 10 MAR 1976

Enclosed is my contribution to the Micro-8 N.L. Also I want to say that you are doing a great job, keep it up.

Please note, before I go any farther, this is an untested circuit, fresh off the drawing board, and may have a few bugs in it. I've checqued it several times but we never know until power is applied.

A BRIEF DESCRIPTION

Until now all Scrolling circuits have operated in basicly the same maner, all lines move up one position and the poor top line is wiped out. What good is that, unless you don't want the top line all this does is give you a once only reading of your copy.

My version on the other hand stores the top line, which may be recalled at any time for re-reading.

Made to plug into the MEMORY board socket of the TVT-II, it operates as follows:

If the cursor is on the top line and receives a "SCROLL" command or cursor UP command all lines shift down one position (see drawing) now line 0 is line 31 line 1 is line 0, etc.

If the cursor is on the bottom line and receives a "MOVE DOWN" command the lines all pop up one position causing line 0 to be stored.

The first step is to re-define the memory as shown in figure 1.

Instead of having two pages of 16 lines of 32 characters we now have one page of 32 lines of 32 characters.

These lines are arranged kind of like a continuous loop belt, with a window (CRT SCREEN) in the middle. This "window" can only show 16 lines but the belt can move so that any 16 consecutive lines can be displayed.

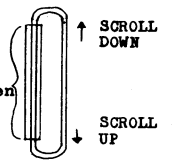


Fig. 1 Memory

The added components (8 ICs and some resistors & Caps) can mount on a small board which plugs in between the memory board and the main board. There are a few connections, however, which cannot be picked up off of the memory socket and wire jumpers must be used.

The only trace breaking to be done is to pins 4 & 5 of IC_{34}.

Just a couple of final notes:

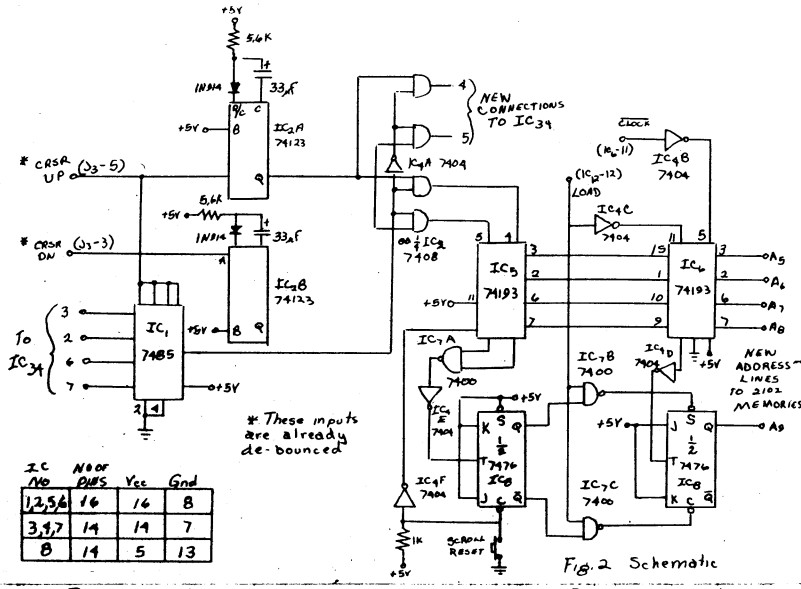
After you design a P.C. Board for this you can decide which pins to use. Also note that any of the A or B inputs can be used as long as the groups are kept seperate (ie As tied together or Bs tied together and the other connected to IC_{34}, don't mix 'em)

If you haven't built your TVT yet, you can mount the Memories on the Scroller board and make it one board.

Let me know how this works if you build it.

Sincerely,

Michael G. Scott



IC No	Noor Pins	Vcc	Gnd
1,2,5,6	16	16	8
3,4,7	14	14	7
8	14	5	13

Fig. 2 Schematic

P.S. I AM ALSO WORKING ON A PORTABLE CRT MONITOR FOR TVT USING A 5" O'Scope Tube. Let you know how it works out

Dr. R.D. Hogg, 2516 Castillo, Santa Barbara, Ca 93105 says that now that he has finished his Ph.D. in Physics, he hopes to have some time to work on his computer. He also says he's been out beating the bush for new subscribers to the Newsletter.

Gary H. Smith has a Mk-8 homebrew with a TVT-II, and is just tying everything together. His biggest concern is that someone write a BASIC for the 8008. He says things change so fast that he is holding off getting involved in advanced systems until everything stabilizes and gets more standardized. He recommends the 8008 Assembler, Editor, and Monitor manuals from Scelbi.

F.T. Baker, 30 Orchard Way South, Rockville, Md 20854 says he is making time and keeping on top of developments until the right combination of microprocessor, memory, and peripherals is available at the right price. He's interested in the TI990 recently announced (16bit microprocessor).

Jack W. Klincher, 15448 Meyers Rd, Detroit, Mich 48227 (313)345-4974 says the NL is still about 18 months away from being able to act as a software clearing house, since it will be that long before everybody has the hardware and software knowledge to start doing real programming.

David E. Barbour, 45636 50th St. W., Lancaster, Ca 95534 says response from vendors is making him unhappy, along with claims that a certain piece of equipment is ready to sell, when it really is not. He's happy about the new law concerning mail-order sales (NL V1, #12, p.1).

R.D. "Slim" Cummings, WA6EDA, 510 W. 5th ST, Pittsburg, Ka 66762 says that several people are working toward 6502 systems, possibly the Jolt. He says the NL is valuable because it stays abreast of whats happening much faster than any of the other computer mags. He also values the unbiased reports from individuals.

John D. Rabenalt, Data Processing, Ector Cnty Schools, Odessa, Tx 79760 has an Altair 8800 with 8K RAM, parallel I/O card, Basic, Selectric printer, and a TI keyboard. He's interested in the Processor Tech VDT. Unfortunately he had to send his Altair back to MITS when a memory card failed. MITS had a big backlog of units to repair, but he says he doesn't mind since they do a good job considering they have too much business.

John G. Reiche, 10406 55th Ave So., Seattle, Wa 98178 (206)723-6505 says he's sorry he hasn't sent some software. He's new to the computer world, but does have a tic-tac-toe game up and runnin. He's promised to send a copy soon. He would like to see more software in the NL.

Mr. R. Pfotenhauer, Dunn Road, Rochedle 4123, Brisbane, Australia has recently purchased a SWTPC 6800 computer.

Ryoichi Mori, Electrotechnical Laboratory, Logical Systems Section, 2-6-1 Nagata-cho, Chiyoda-ku, Tokyo 100, Japan is chairman of the micro computer committee and wants to receive the newsletter.

Mark Goldstein, Advanced Tools for the Arts, Box 825, Tempe, Az 85281 owns a small company producing electronic music equipment, industrial control systems, etc, and is interested in computer graphics. He's building X-Y displays using analog computer controls. He intends to add a uP, TVT and cassette storage. He would like to correspond with anyone having ideas on converting X-Y deflection voltages into standard video signals with sync in real time, simulating an oscilloscope display on video monitors.

Robert Leonard, 3003 Driscoll Dr, San Diego, Ca 92117 (714)274-9502 has a Mk-8 with 8K of 2102s, Suding TVT and Cassette, an SWTPC Keyboard, and a hardware stack.

John Bottoms, P.N.P. Services Co, 423 Knoblech Ave, Jeffersonville, In 47130 reports that he's sold quite a few TVT-II boards, and has had requests for other boards. His new goal is to be able to supply etched and drilled boards from any R.E. or P.E. article, or any other board if the artwork is supplied. He is also working on a 6502 kit which will use the TIM monitor ROM from MOS Technology. the board will have 1K pre-programmed ROM and 1K RAM. Another memory board will also be available. The goal is to supply a system for under $150 (plus power supply and TTY).

Anthony G. McGookin, 402 Jones Dr, Bartlett, Il 60103 received his BSEE 25 years ago, and since then has worked in all phases of the computer industry, field engineering, marketing, production and R&D. He is now working for Univac, and with retirement not too far off, wants to design a state-of-the-art system to keep himself occupies with. He is really impressed with the IMP-16 (big brother to the PACE), and thinks its been overlooked by kitbuilders. He is also looking at the IMSAI 8080 and the Digital Group's kit, also the Intersil 6100 chip. He wants schematics for a good TV monitor to design a self-contained TVT similar to the SWTPC, but with a 64 or 80 character line. He has promised more info later.

Dean Dillabough, 913 Hamlet Rd, Ottawa, Ont, Canada K1G-1R3 bought an 8008 and 1K of 2102 from Godbout Electronics, and is designing his own system. He has to finish designing the display/control board, and then can start on the PC board layouts. After that he wants to work with the 8080A or the 6502. He says the mail is now going through after the big strike.

Glendon C. Smith, 5822 Daffodil Cr, Dayton, Oh 45449 has a Altair with 12K of memory, Suding cassette and calculator interfaces, Clare-Pendar keyboard, and a homebrew TVT and graphics interface in the works. His TVT will provide an 88x88 grid, or blinking alphanumerics or graphics characters. He will send more info when the TVT is completed. He's afraid that new uPs will overshadow the 8008 and 8080 and that 8080 users will be ignored, even though thousands of people are still using 8080s. He also wants to see much more software in the NL. He will send a penny matching game and some TVT routines soon.

Allen T. Swann, 5503 Dolores Ave, Halethorpe, Md 21227 heard about the NL from Creative Computing and wants to join. He's been in computers for about 10 yrs and is now a staff consultant of Equitable Trust Bank in Baltimore. He's often talked to people about having a Computer in the basement, and now uPs have made it a possibility.

Gary E. Johney, PSC Box 264, APO San Francisco, Ca 96264 says his Mk-8 is having growing pains and will send more info later. He also reports that Mini Micro Mart is starting to deliver after 6 months. He would like to see more software in the future.

Pete Halstead, 23 St. Helen's Cres., Burton Joyce, Notts., England would like some info on availibility of the Mk-8 in England, and on construction.

Dear Hal,

March 24, 1976

A letter from Glendon C. Smith (excerpted somewhere else in this NL) expressed a wish for a newsletter that would be what the Micro-8 NL started to be, i.e., exclusively for the 8008 and 8080 users, and which would stay that way for 8-10 years rather than following all the new systems which are springing up. Mr. Smith told about a similar happening involving a piece of HP gear, which was later superseded, and therefore, ignored, in all of HP's publications. He expressed the fear that MITS' Computer Notes and BYTE would do the same.

Could it happen to the Micro-8 NL? Of course it could, except for one thing. The Micro-8 NL is composed almost exclusively of the contributions of its readers. If its readers send anything about the 8008 and 8080, it goes in the NL. By the same token, if you send something about a new product, it also goes in. The 8008 and 8080 can never be ignored if you write in and tell us what you're doing; hardware or software, it's all important.

Software is another touchy subject. Every month there are several letters complaining that they don't see enough software in the NL. If each letter had contained a software listing, there'd be plenty of software in the NL every month. Face it, fellow computer freaks, it won't happen if you don't make it happen, because there isn't anyone on the NL who does nothing but write software. If you want to read about software, send in some software to read about. Set a good example for everyone else to follow.

To show I sometimes practice what I preach, here are subroutines for decimal addition and subtraction of two 12 digit numbers. It should handle most people's tax returns. How you call it, and how you read out the results are your business. Two decimal digits per byte, right justified.

Addition

```
1       LXI D, 1stNUM
2       LXI H, 2ndNUM
3       MVI C, 006
4       XRA A
5 LP:   LDAX D
6       ADC M
7       DAA
8       STAX D
9       INX H
10      INX D
11      DCR C
12      JNZ LP
13      RET
```

Subtraction

```
1       LXI D, 1stNUM
2       LXI H, 2ndNUM
3       MVI C, 006
4       STC
5 LP:   MVI A, 231
6       ACI 000
7       SUB M
8       XCHG
9       ADD M
10      DAA
11      MOV M, A
12      XCHG
13      INX D
14      INX H
15      DCR C
16      JNZ LP
17      RET
```

Samuel H Daniel
402 Juniper
Vandenberg AFB, Ca 93437

Dan Erickson, 400 S. Catalina Ave, Pasadena, Ca 91106 sent a note announcing the formation of the San Gabriel Valley Chapter of the SCCS. The chapter will be open to all current and potential members of the SCCS. Interested people should contact Dan, but send a SASE if you want a reply, since the chapter has no budget.

John Griffin, 34008 22nd Pl SW, Federal Way, Wa 98003 says his latest project is a 256x256 point plotter on a 12in P-7 CRT. He has the 1K Digital Group operating system for his Mk-8, and says he sure could use something better.

Frederick L. Kahl, 704 Courtland Circle, Western Springs, Il 60558 has an Altair with 25K of memory, 8K BASIC, SWTPC CT-1024 TVT, a paper tape reader and punch. He also has the Intel monitor in PROM, and the Assembler and Text Editor, with Extended BASIC maybe on the way. He expects to do some work in Industrial Control Systems (Numerical Control & Process control). He is rather disgusted with MITS in terms of delivery, product design & performance, and general "don't give a damn" attitude. He has a mod for the CT-1024 which gives Auto erase of next line on line feed or foldover which he offers to anyone interested.

R J Riley, Box 4310, Flint, Mi 48504 has 5 sets of 4 TI SBP0400 4bit-slice CPUs (ie, makes a 16bit CPU with 512 instructions from each set) They cost him $360 a set, and he is selling them for $250 a set. He also has 10 Phi-deck units which cost him $100 each and he will sell them for $75 apiece.

Cuba Hardin, Jr, 700 W Second St, Owensboro, Ky 42301 says hes interested in word processing, TVTs, and producing outputs suitable for phototypesetting.

Rick Brennan, 601 S Knight, Park Ridge, Il 60068 finally gave up wiring his 4K of 2102s on a Vectorboard, and bought a Solid State Music board for $20. He says its nice, and he wishes he had read about it sooner. He says the NL deserves much credit for bringing the uP into many hobbyist's homes.

Dear Micro-8,

March 22, 1976

I have seen your newsletter only occasionally, a situation which I hope to improve by sending you a check for $6. Other than that, I have a specific question, and a bit following for inclusion in the newsletter.

The question is: can you get in touch with Keith Britton or otherwise get more information to me about whatever he had in mind with the comments about Vocal Output. According to your report of the CompCon session, a vocal output (speech synthesizer) would be possible with only a ROM and "4 to 5 chips". Could you please tell me more?? Even an outline of what he had in mind and I can probably take it from there. As far as I understand the problem, you need 4 or 5 tunable resonator circuits, + a driving pulse generator, not to mention additional control circuits. Is there some proprietary secret behind a significant reduction of the system, or has the control circuitry been merely "minimized" away? If a copy of the paper is available, I would very much appreciate it, along with any other related comments. I am enclosing an SASE for that purpose.

D. Lloyd Rice
821 Pacific Street, #4
Santa Monica, CA 90405

6502 User's Association taking shape
March 20, 1976

Several MOS Tech 6502 builders and users have been in communication recently and are forming a more organized way of keeping in touch. Currently, this is in the form of a mailing list and could easily expand to a newsletter. Most are more interested in getting software out of the group than hardware ideas simply because most have either bought systems or have their own ideas about what they want. Personally, I have been involved with mini software for the last ten years or so, and look forward to writing editors, assemblers, etc. I have ideas for a simple BASIC-like language centered around a scientific calculator chip set interfaced to the 6502. I plan to have a modem up as well as KC std. cassette.

John Campbell, 6278 Lake Lucerne San Diego CA 92119, has offered to copy and send out all materials in your SASE. Send him a description of your system, what code you're running and what you would like.

UNITED STATES DEPARTMENT OF COMMERCE
National Bureau of Standards
Washington, D.C. 20234

My name is Dick Hayes and I am employed by the National Bureau of Standards at Gaithersburg, Maryland. Our group is responsible for the instrumentation associated with the nuclear reactor facility.

Recently we purchased the hardware for building the Mark 8 computer using the Intel 8008 microprocessor. Since assembly, I have found jumpers missing and not called out on the Data MPX Board (IC3-14 and +5), and on the Address Latch Board (IC1-5 and IC2-1). It is quite obvious that there are other major problems.

Your name was given to me by Radio Electronics Magazine as a possible source of further information on updating literature newsletters, and troubleshooting literature. Any information you could forward me in regard to the Mark 8 Computer would be gratefully appreciated. If you should have any questions, please call me at 301-921-2303.

Sincerely yours,

March 16, 1976

Richard P. Hayes
Reactor Radiation Division
National Bureau of Standards
Washington, DC 20234

Phillip A Milks, Box 98, Huntertown, In 46748 **is a graduate electronics engineer with daily contact with the mushrooming field of uPs. So far, he doesn't have one of his own, but says it appears he might be hip-deep in them this year, as he is contemplating a commercial product involving a uP. He praises** Martin Research for thier excellent hardware book; Scelbi for their excellent software manuals; says the Iasis course is wordy but generally good. His home interests in uPs include home energy management and entertainment; budget analysis and planning; education. He would also like to get copies of the PCC issues for which there are no longer any back issues. He's interested in either buying them outright or in borrowing them and xeroxing the parts he wants.

Martin J Boyle, 1030 Milton Way, Rahway, NJ 07065 and his 15 year old son have a TVT-1 with scrolling breadboarded and functioning but not finalized. They also have a Model 19 TTY with a Model 14 reperforator which they use to copy RTTY on 2meter ham radio. Using Baudot to ASCII and ASCII to Baudot converters they hope to tie in a microcomputer for hobby and misc. purposes. They haven't decided on which uP yet, but probably will in a few months.

Richard F Schultz, 611 N Dexter Dr, Lansing, Mi 48910 says that he and Bill Serviss of the Mid Michigan Users Group have gotten the MIL Monitor 8 running on Bill's homebrew 8008 with TVT-1. The Monitor is one supplied by Mini Micro Mart on their Mod C-8-9 board. The TVT-1 uses the RE UART board, modified to separate the UART into 2 independent units with only a common clock. More info to the interested (send a SASE).

John James, 1597 Monument St, Concord, Ma 01742, sends the following Pseudo-Random Generator Program. It uses a 16bit seed in the D&E registers and returns a new E in the A register. It repeats every 65,535 calls.

```
Statement #  1  Rnd:  LAD        #  11  EVEN:  XRA
             2        NDI 020       12  ODD:   LAD
             3        LBA           13         RAR
             4        LAE           14         LDA
             5        NDI 013       15         LAE
             6        XRB           16         RAR
             7        JTP EVEN      17         LAE
             8        LAI 001       18         RET
             9        RAR
             10       JMP ODD
```

David Higgins
PO Box 113
Paragould, AR 72450   **phone # (501) 239-8588**

Note, the po box is different from the last one, which was 1106.
The latest project, and the only one in months (school) is the MC6800 evaluation kit. Will let you know the $$$ cost after all the little goodies are added in. Like power supply, small TTL. chips not supplied, resistors, and so on. Also it's expanibility (yes, that's a mispel) without much work, and an external RAM board should also be in the works.

I've got an applications type booklet on a broadcast automation (canned music) system that uses a 8008 for a brain. It's got about 6.6k of ROM, RAM according to your needs, and judging by what it does, they are working that poor little 8008 to death.

Hey, have you ever seen the layout of the (IBM) 360's micro-code instructions? those things are 128 bits long, at least. It's crazy. Thank whoever you don't have to mess with them.

that's it, keep up the work.

David.

Dear People:

Please add my name to your distribution list for MICRO-8 NEWSLETTER. You may send it to me at the above address.

Thank you.

Sincerely,

UNIVERSITY OF COLORADO
CRAGMOR ROAD
COLORADO SPRINGS, COLORADO 80907

March 15, 1976

J. Daniel Couger
Professor of Computer and Management Science
Editor, COMPUTING NEWSLETTER

January 18, 1976

It was delightful for Jim Brick (NL #12) to introduce himself as a "Senior Systems Analyst (whatever this is)." In precisely the same sense I am a Computer Scientist...that is what my card says but someone else selected the title. For the last few years my work has been in minicomputer systems programming, mainly with peripherals (I/O drivers, interrupt processors, and so forth.) Prior to this I had many years of scientific applications programming with the "big fellows" and this will be the subject of my letter.

Sooner or later many of the microcomputer users will become interested in numerical methods through BASIC or otherwise. Permit me to list some books which may be of value to them:

1. A.I. Forsythe, Computer Science: A first course, John Wiley, 1969
2. F. Gruenberger, Problems for Computer Solution, John Wiley, 1965

These books were written with the particular problems of the beginner in mind and are intended to be thought provoking. The first is language independent (flow charts are used), it was written for intelligent high school students. The second book is at the college level and expects some computer exposure but not very much. The second book makes many references to FORTRAN but it does not hurt, merely think BASIC and continue. For both books there were additional authors but I did not have room for "et. al."

Gruenberger speaks of a classic work by Hastings. A more recent work is

3. John F. Hart, Computer Approximations, John Wiley, 1968

which costs entirely too much but is very good for those of you who get hung up on approximations to various functions. This book will probably not be an easy book to read but is of greatest value for its scads of coefficients for approximating polynomials.

Just as Jim Brick, I am more or less "homegrown" with minimal exposure to those ivy covered walls but I found that I could read

4. J.B. Scarborough, Numerical Mathematical Analysis, The Johns Hopkins Press, 1962 (fifth edition, maybe there is a later one)

You can perhaps find an earlier edition than the fifth in a used book store but these are not satisfactory because they did not address the particular problems of the computer.
A genuine treasure trove, a big, hard bound book at a reasonable price from the Government Printing Office is

5. M. Abramowitz, Handbook of Mathematical Functions, AMS 55, NBS

At one stage of my life I fell in love with the Hewlett-Packard HP-65 and in the normal course of things I joined the HP-65 users group. The owner of a -65 can join this users group for free but a non-owner can join for a small fee. The HP-65 users group has an enormous collection of programs available for a reproduction charge. For a microcomputer user to use these programs he must simulate, in effect, the functions of the HP-65, which is to say that he must provide such as the sine function, square root function, logarithmic function, and so forth. The HP-65 programs are guaranteed to be fairly short so thus usuable on even a small memory microcomputer. A similar resource to be available soon is the users group for the Texas Instruments SR-52 programmable.

Those of you who are interested primarily in mathematics and scientific algorithms rather that in "doing things themselves" should give some consideration to the purchase of the SR-52 for $400. The HP-65 at $800. suddenly seems expensive.

If you find programmable pocket calculators attractive, there are a few things of importance to keep in mind. An imperative to my mind is that a calculator must have tests that permit conditional branching and/or conditional stopping. It seems stupid but many programmable calculators do not have conditional tests. Most such calculators do not permit subroutines. The HP-65 allows subroutines to one level while the SR-52 allows them to two levels.

The T.I. SR-52 has some kind of interface because an optional printer is to be supplied for it. Surely the engineers who designed the beast would not make a strictly one way interface...why cut themselves off at the pass and eliminate the future possibilities of data collection, etc. The SR-52 is unique in allowing both indirect and indexed addressing. (It is not truly indexed but the effect can be obtained.)

Sincerely,

Webb Simmons

Webb Simmons

P.S. Send volume 2, NL's 1 thru 6 of the Micro-8 Newsletter for $6.00 if it goes. My check will be returned in the SASE enclosed if it doesn't.

Webb SIMMONS
1559 Alcala Place
San Diego, Calif. 92111

Adam Trent
Ascension Island
Box A NASA STDN
Patrick AFB, Fla. 32925

5 Mar 76

It's been some time since you've heard from me. None-the-less, I've been reading your Newsletter with avid interest. Here's $6 for a renewal.

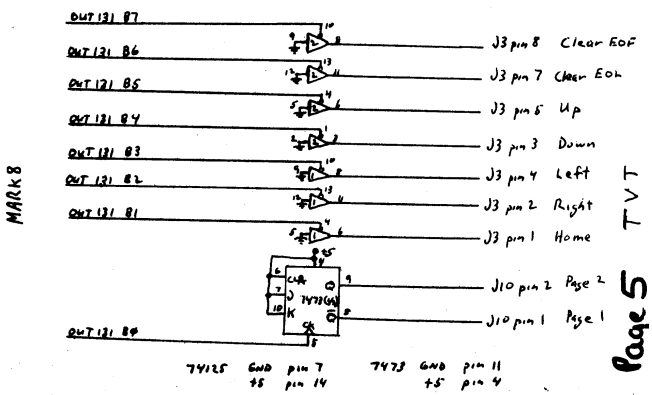
My Mark8 had been in pieces for many months while I put it, an MNH modem, a TVT2 and keyboard all in one nice terminal type box. I now have it all back together and running again. I'd like to pass along how I implemented software control of my TVT2.

I used the outport functioned by the 131 instruction (octal). The bit assignments are:

B7	Clear EOF	B3	Cursor Left
B6	Clear EOL	B2	Cursor Right
B5	Cursor Up	B1	Cursor Home
B4	Cursor Down	B0	Change Page

None of the above actions will function properly if held at a latched high or low level by the standard outport latch bit. This is because the latched level will fight the pulsed levels that should normally occur during the input of characters to the TVT2. For instance, the TVT2 creates for itself an advance right pulse for each input character keypress. This proper operation is inhibited if the Cursor Right control line (j3pin2) is held at a high logic level. For similar reasons none of the other controls will function properly if held either low or high.

After building the TVT2, I decided to attempt screen control by using software and an outport. In order to do this, I had to make the action of a bounceless SPST switch which momentarily grounds the control line and then goes to a high impedance state. I used two 74125 tristate buffers, a 7473 and some software:



With this set-up you should execute a short initializing routine after powering up. I include the following 3 byte sequence as an early part of my cassette bootstrap program: LAI, 376, OUT131. This places a quiescent high impedance on all the necessary control lines. Then, in order to function any of the controls later, you must output a temporary low on its respective bit and then return it to its normal high (a high on the 74125 control line takes the buffer to its high impedance state). I call the following short subroutine for any of the controls:

```
Screen Function   301     LAB
                  131     OUT131
                  006     LAI
                * 376     (normal levels)
                  131     OUT131
                  007     RET
```

After loading the code for the desired function in B Register, I call the above subroutine. For example, Change Page:

```
                  016     LBI
                * 377     (Bit 0 high)
                  106     CAL
                  ---
                  ---     Screen Function
```

Unlike the others, the Page control out bit is held normally low and taken high momentarily to toggle the 7473 flipflop.

Given my selection of OUT131 bit assignments, the octal control code for each function is:

Change Page:377, Home:375, Right:373, Left:367,
Up:337, Down:357, Clear EOL:277, Clear EOF:177

This software control of the cursor allows a limited but fun 32X16 computer graphics field using the TVT2.

Well, despite the fact that we're thousands of miles out in the middle of an oceanic nowhere, there are now about five Computer Hobbiests here on Ascension (two Altairs running, a Sphere on order, an IMSAI on order and, of-course, my Mark8/TVT2 system). If we had a formal organization it might be called the "South Atlantic Computer Society" and we could boast a territorial region of vast proportions. However, we have no formal organization and probably don't need one since the Island is so small (34 sq mi, pop about 1300).

Thanks again for the fine MICRO-8 Newsletter.

Sincerely,

Adam Trent

37-68 64 St.
Woodside NY 11377

January 18, 1976

I haven't decided on hardware yet, which MPU, 8080, 6800, 6502, or some other, which vendor's kit or whether to build my own from scratch. So I'm eager to hear your comments and the comments of others expressed in the pages of Micro-8 newsletter. I hope you'll be able to keep it up for a while longer.

As far as peripherals are concerned, I like the thinking of Jim Loy, of Motorola, who suggests a hexidecimal (or octal) keypad and display (rather than binary switches and LED's) for a first-step I/O device. Hexidecimal is easier to read and easier to key than the usual front-panel switches and lights. In his Motorola demonstration microcomputer it is connected to the MPU by dedicated ROM. When one outgrows the keypad, one can go to a teletype-writer or video monitor and keyboard, later adding cassette tape storage and eventually floppy disk.

We are forming a computer club in the New York City area. We had our first meeting in November, thanks to your name and address list coming out when it did! We still haven't formally agreed on a name and officers. Information on monthly meetings can be obtained, however, from myself or from:

Bob Schwartz
1E, 375 Riverside Drive
New York NY 10025
(212) 663-5549

Sincerely,

Wayne H. Foote

Wayne H. Foote
(212) 335-9496

MRS
P.O. BOX 1220
HAWTHORNE, CA. 90250

March 20, 1976

AM6800

We have developed a high quality product which allows owners of an Altair 8800 to develop systems with Motorola's MC6800 MPU.

This product is a must for anyone who wants: 1. To compare the Intel 8080 with the Motorola MC6800. 2. Has an Altair 8800 and plans to use the MC6800 MPU for a new design. 3. Wants to have the flexebility of both.

The AM6800 card in an Altair 8800 also allows one to take advantage of all the best features of each processor in software through alternating processors in the same program.

It is a one board pin compatible card for an Altair 8800. No modifications are required and it will not interfere with normal execution of 8080 programs. The MC6800 gains control via software command, one instruction. You can return control by either the front panel stop switch or through software, one instruction. It will operate with either fast or slow, static or dynamic memories. MC6800 MPU status signals are brought out on unused bus lines (jumper option), ie. Ø1 & Ø2 clocks, VMA, and R/W lines for system development. The 8080 processor card remains in the computer to handle all front panel controls. All data and address lines are three state buffered.

The AM6800 card is a fully TTL-Buffered Microcomputer using Motorola's MC6800 microprocessor, and can stand alone with the addition of only an external clock and power supply.

Our price is $147.75 plus tax for the complete kit and $97.75 plus tax for the complete kit except the MC6800 MPU. Delivery is 2 to 4 weeks. Postage is not included. Make all checks payible to M.N.Kalashian.

JACKIE W. PIERCE 460-84-4884
178th. SIG. CO.
APO N.Y. 09102

17, MAR. 76

LOOKS LIKE "BYTE" IS DOING A GOOD JOB. THE TAPE STANDARD THEY WERE INSTERMINTAL IN SETTING SHOULD SOLVE ONE BIG PROBLEM THAT HAS PLAGUED THE COMP. HOBBYIST. MY SUBSCRIPTIONS TO"THE COMPUTER HOBBYIST" HAS NOT BEEN ARRIVING. I WROTE THEM A LETTER 3 WEEKS AGO, AND AM EXPECTING TO HEAR FROM THEM SOON (HOPE). I HAD ORDERED THE MITS 680, BACK IN DEC. 75. AFTER TWO MONTHS I RECEIVED A NOTICE THAT THE SHIPMENTS WOULD BE DELAYED DUE TO MODIFICATIONS OF THE CPU BOARD. AT THAT TIME I CANCELED MY ORDER, AND ORDERED A "JOLT" CPU CARD FROM JAMES ELECT., FOR $156. IT ARRIVED FAST AS USUAL, AND I PUT IT TOGETHER IN ABOUT 3 TO 4 HOURS. YOU CAN POWER UP AND RUN THE MONITER PROGRAM THAT IS STORED IN ITS 1K ROM. THE MONITER IS DESIGNED TO BE ENTERED FROM A TTY (ASCII), AND WILL READ MEMORY, MODIFY MEMORY AND INIATE PROGRAMS. THE TTY INPUT AND OUTPUT ARE SERRIAL. THERE ARE THREE 8 BIT IN AND OUTPUT PORTS BESIDES THE TTY. SINCE I DONT HAVE A TTY, I PROGRAMED MY "MARK8" TO SIMULATE THE TTY.THIS IS WHERE THE STORY TURNS BAD,,. THE THING DID NOT WORK. I OF COURSE CHECKED ALL CONNECTIONS, AND SOLDER RUNS, BUT ALL SEEMED OK. THE RESET FUNCTION SEEMS TO BE THE TROUBLE. THE KIT HAD BETTER THAN FAIR DOCUMENTATION, WHICH HAD A TROUBLE SHOOTHIG CHART. AFTER GOING THROUGH ALL THE CHECKS, WITHOUT CORRECTING THE TROUBLE, DIRECTIONS SAID TO CONTACK THE SERVICE DEPARTMENT FOR FURTHER INSTRUCTIONS. THIS WAS DONE ONE WEEK AGO, AND I AM WAITING TO HEAR FROM THEM. THE JOLT SYSTEM USES THE 6502 CPU, FROM "MOS TECH."
I HAVE ORDERED THE "KIM-1" MICROCOMPUTER SYSTEM FROM "MOS TECH". THIS IS A COMPLETE MICROCOMPUTER ON ONE CKT. BOARD(EXCEPT FOR THE POWER SUPPLY). IT USES THE 6502 CPU, TWO 6530s, HAS 2K OF ROM WITH MONITER, 30 IN/OUT PINS, OVER 1.1K OF RAM,ON BOARD HEX KEYBOARD WITH 8 FUNCTION KEYS, SEVEN SEGIMENT DISPLAYS THAT DISPLAY ADDRESS, AND DATA, AND IT ALSO HAS A CASSETTE, AND TTY INTERPHASE. THIS SYSTEM SEEMS TO BE THE MOST USEABLE FOR THE PRICE, SYSTEM I HAVE SEEN YET.(FOR FURTHER INFO, WRITE TO " MOS TECH. INC., 950 RITTENHOUSE RD.,NORRISTOWN PA. 19401)
I AM STILL TRYING TO FIND SOME A/D CONVERTERS THAT RUN AT ABOUT 400K CYCLE TIME, FOR LESS THAT 100 DOLLARS.
WELL ILL CLOSE HERE, KEEP YOUR BITS IN ORDER, AND DONT POWER DOWN.

SINCERELY,
Jackie W. Pierce
JACKIE W. PIERCE

AM6800 OPTIONS

The AM6800 board has provisions for several jumper options which must be implemented.

OPTION 1

The first option depends on how you wish to restart the MC6800 MPU. You are offered the choice between using the "reset" switch or the "external clear" switch. If you are using dynamic memories you should use the "external clear".
Connect a one thousand ohm resistor between points A and B for the "external clear" option. Connect the resistor between B and C for the reset swich option.

ORTION 2

The second option is concerned with MC6800 input output device control. It is normally recommended that you use the 8080 for I/O since the MC6800 uses memory locations for I/O. Connecting a jumper wire between J and L will allow using all address for memory. Puting a jumper wire between J and H will reserve the top 256 bytes of memory for I/O less the very top 8, which are interrupt vectors for the MC6800 MPU.

OPTION 3

We provide the user of our board with the option of bringing out some of the MC6800 signals on unused pins on the bus. The following signals are brought out to the bus with this option:

MC6800 Ø1 clock Pin #14
MC6800 Ø2 clock Pin #15
MC6800 R/W Pin #16
MC6800 VMA Pin #17

If you wish these signals brought out on your bus you must connect a jumper wire between F and G.

OPTION 4

The last option offered is concerned with the signal called PDBIN on pin #78 of your bus. Normally, a jumper should be soldered from P to N. This will allow the data lights on the front panel to be active while the MC6800 MPU is running. If Option 2 was selected for I/O operation then this jumper should be connected from N to M. This will sync PBIN to the MC6800 Ø2 clock.

All it should take to get a MOS TECH 6501 to work is plugging it in. MRS is checking this out now. Or better yet, get two boards, make a few changes and your ALTAIR compatible machine is three different processors simultaneously. Anyone ready to design an F8 board or ?????. Makes an ALTAIR Fus machine look better and better. Hal Singer

AM6800 PROCESSOR BOARD

* MC6800 Microprocessor Based
* Altair 8800 Pin Compatible
* Two Micro Second MPU Cycle Time (2 Cycles/Instruction - Min.)
* Static and Dynamic Memory Compatible
* Alternate Processing Between 8080 and 6800 During One Program
* Transfer of Processor Control is Via Software
* Transfer Time Does Not Exceed One MPU Cycle Time
* 6800 Processor Restart Accomplished Via "Reset" or "External Clear" (Jumper Option)
* NMI and IRQ Brought Out to Altair Bus
* Current Drain Less Than One Ampere
* LED On AM6800 Board Indicates 6800 Selected
* MC6800 MPU Status Brought Out To Altair Bus (Jumper Option)
* 8080 Device Code Instruction to Select AM6800 is 323,367 - Octal
* MC6800 Instruction to Select 8080 is F7,FFF7 - Hex

John Craig, I/O Editor
RFD Box 100D
Lompoc CA 93436

Home phone:
(805) 736-7337

73 magazine
for radio amateurs
603-924-3873
PETERBOROUGH, NEW HAMPSHIRE 03458

March 24th, 1976

Micro-Eight Readers...

After the recent write-up in Byte magazine about the Micro-Eight Newsletter I felt it would be appropriate to drop you a line and straighten out a few things...and share a few thoughts with you.

First, as I'm sure you've noticed by the letterhead, I'm no longer associated with the newsletter. I'm now working for Wayne Green as editor of the "I/O" (computer and digital electronics) section of 73.

Secondly, it should be pointed out that the Micro-Eight Newsletter is, and always has been, Hal Singer's baby. It was his intiative and effort which started it...has sustained it...and of course, has made it as great as it is. I probably never really contributed enough to be called a co-editor, and I suspect Hal did that more because we're friends than anything else. (By the way, last Saturday the Southern California Computer Society presented Hal with a trophy in appreciation of the contributions he's made to our hobby. Stop and think for a minute where this hobby would be now if it hadn't been for Hal Singer's efforts. Almost every club which has been formed around the country used the newsletter to get started.)

I would also like to take this opportunity to say that I'm looking for articles for "I/O". The "I/O" section of 73 is about 40 pages in length (about the size of a small magazine, really) and contains articles dealing with computer applications, fundamentals (hardware & software), interfacing, construction projects, games, music and just about anything else you can think of. If you have any ideas for an article for 73 I sure would like to hear from you (so how's about dropping me a line and we'll discuss them?).

Writing for 73 can certainly be profitable. If you're like most computer hobbyists, you're always looking for those extra bucks to buy this or that peripheral. This is one way of doing it. And, of course, it always looks good on a resume to have published professionally.

It's thru magazines such as 73 that we'll attract more hobbyists to computers (rather than thru computer magazines). And, the publisher of this magazine is a man with a strong desire to get as many people as possible turned on to these toys. (He's also a man with vision stretching many, many years into the future.)

Looking forward to hearing from you.

Sincerely,
John Craig
John Craig
I/O Editor - - 73

MARCH 21, 1976

FRØM: THE CØMPUTER HØBBYIST GRØUP ØF NØRTH TEXAS(TCHGNT)
% L. G. WALKER, PRESIDENT
RT. 1 BØX 272
ALEDØ, TX. 76008

WE WØULD APPRECIATE IT VERY MUCH IF YØU WØULD PRINT THE FØLLØWING AD IN YØUR PUBLICATIØN:

THE BETA TERMINAL ØWNERS GRØUP ØF THE CØMPUTER HØBBYIST GRØUP ØF NØRTH TEXAS IS INTERESTED IN ESTABLISHING CØMMUNICATIØNS WITH ØWNERS ØF TERMINALS THAT USE THE UNIVAC 0769 SERIES PRINT MECHANISM. WE ARE LØØKING FØR BETA KEYBØARDS (MICKØSWITCH # 53SW1-2). ØNE ØF ØUR MEMBERS HAS SØME SPARE PARTS FØR BETA TERMINALS FØR SALE. CØNTACT L. G. WALKER, RT. 1 BØX 272, ALEDØ , TEXAS 76008, (817) 244-1013.

SINCERELY,

THANK YØU VERY MUCH.

L. G. WALKER

I presently have an IMSAI 8080 with 8K of Processor Technology up and running. It is a beautiful machine!!! I bought the machine on February 2. Before that time, I had never even soldered or put together an electronics kit. I don't have the time now, but I hope shortly to write down my experience and send it to you for possible publication.

Kenneth Young
3311 West 3rd Street
Apartment 1-319
Los Angeles, California 90020

Sincerely,
Kenneth Young

March 20, 1976

I believe that one of the most important functions of your very fine newsletter is to make the hobbyist aware of unscrupulous mail order suppliers. We are all aware that we are taking a risk any time we put a check in the mail to a supplier.

In hopes that my experience with Mini Micro Mart will save some other hobbyist a lot of grief, I am sending this account of my experience.

I ordered a Mark-8 kit from Mini Micro Mart in June, 1975. I received nothing from them until mid-August when I received a partial shipment of integrated circuits (minus the 8008, and 8263/8267 multiplexors) and a request for additional money to cover the cost of a "better" memory board (2102's) as they were not going to supply the standard Mark-8 board. I sent an additional $15.00, bringing the total I have sent them to $187.45.

In November, I received the "better" memory board and 2102's - it is their C-MOD8-5 board. The documentation is trash and the board is not compatible with the standard Mark-8 boards. I also received the circuit boards for most of the rest of the kit (minus the LED Register Display board).

After waiting seven months, I still do not have (1) the 8008 CPU chip, (2) the two 8263 and two 8267 multiplexor chips, (3) the LED Register Display board, and (4) any resistors or capacitors. Three letter and two phone calls have been totally ignored.

In speaking to Mr. Maury Goldberg by phone on January 2, 1976, I was told that they do not now have the LED board, have not started to produce it, and may try to buy it from some other supplier to fill their orders. Mr. Goldberg did not seem to feel that a seven month delay in delivery was unreasonable as they "had had problems".

I certainly will never buy anything from Mini Micro Mart again. Other hobbyists will, of course, take their own chances, but if anyone would care to give me a call (401-728-2869) or drop me a line, I'll certainly tell them what I think of Mini Micro Mart. My experience is completely documented with copies of letters, checks, invoices, and telephone notes.

Please keep the Micro-8 newsletter going. Unfortunately, it appears we hobbyists are still in a jungle when dealing with suppliers and the newsletter is invaluable in showing the way.

Yours truly,
James Tucker

44 Circledale Drive
Cumberland
Rhode Island 02864
January 19, 1976

I found out about your group from Arthur Kleiman, associate editor of Radio-Electronics magazine. I'm interested in building a minicomputer but I don't have any idea which features are more important than others. I have two years of electrical engineering (1½ at Steven's Institute of Technology in Hoboken, N.J. and ½ at New York Institute of Technology in N.Y.). I'm familiar with BASIC and FORTRAN IV. I would like to build a system similar in operation to either the XEROX 800 ETS or the IBM MTST. Input would be from a keyboard preferably with ASCII code. Output would be either hardcopy from the typewriter or visual on a television screen. A memory library would be kept on cassette. Sample use would be an inventory of post-war LIONEL trains which could be updated periodically by entering new aquisitions via keyboard and verifying proper numerical entry via television screen, with availability of hardcopy for away from home reference,(i.e.when at collector's meets).

I would like to communicate with someone who could guide me towards the equipment which could meet my needs. I would appreciate any help or suggestions where I could get help that you can supply. Thank you very much for your time and efforts.

Sincerely,
Richard R. Rutkowski

January 4, 1976

166 Caswell Avenue
Staten Island, N.Y. 10314

1331 North Lotta Drive
Los Angeles, California
90063
March 6, 1976

Is there a source for the TV Typewritter data package advertised in the September 1973 issue of Radio-Electronics? According to Radio-Electronics, the supply is now exhausted. Possibly a reader has a copy and can xerox it for me. I will pay his expense if he will write me and let me know how much it will cost.

I am also looking for a copy of the Intellec 8 (8008) assembler to run on my MOD-8 system. Any one with a readout can contact me. I have the MIL Monitor 8 up and running. I encoded it by hand into octal and did debug on the machine. All the bugs are out and it is running perfectly. I am enclosing an octal readout for those readers that do not have an assembler yet. Documentation and programmed units can be obtained from Bob Schwartz in Chicago. This readout can be bootstraped by a SIM-8, or Intellec 8.

Monitor 8 commands:

```
LOC set location pointer... used in one pass assembler
DLP display current location pointer
DPS dump symbolic..... yes, a real dis-assembler
LDO load octal..... MIL octal(like readout)
DPO dump octal
LBF load BNPF format..... what a drag
DBF dump BNPF format
EDT enter edit mode..... anyone got an Intellec Editor
XQT initiate program execution          (not very powerful)
CPY copy routine
TRN translate routine..... THIS ONE IS DYNAMITE
SBP set break-point..... breaks and lists reg. A, B, C, H, L,
CBP clear break-point                                    M.
PRG program PROM
```

I enjoy your newsletter and congratulate you on a fine job.

Sincerely,
Dave Gillespie

Bob Wallace, designer

PO Box 5415, Seattle, Wa. 98105

New World Computer Services, Inc.

Feb 23, 1976

Micro-8 Newsletter
Lompoc, California

Dear Hal,

"The Retail Computer Store" is opening in Seattle, and I'll be handling publications for them. We'd like to carry the newsletter; accordingly, enclosed is a purchase order for 5 subscriptions and some back issues. Keep up the good work !

Sincerely,
Bob Wallace

Just got a data sheet for the Texas Instruments TMS 9900 microcomputer. Looks like an excellent chip (I think; haven't really analized it yet). 64 pins (!), separate 16 bit address and data buses, good instructions for both bytes and words. Could be a reasonable hobbyist minicomputer chip (I don't consider either the PACE or the General Instrument micro's to be particularly powerful).

Sincerely,
Bob Wallace

RICHARD N. RUBINSTEIN, M.D.
7711 ELBA ROAD
ALEXANDRIA, VIRGINIA, 22306

January 6, 1976

Gentlemen;

Enclosed is $6.00. Please enter my subscription for Volume 2.

I've got a 21K Byte Altair 8800 with ASR-33, ACR, EXTENDED BASIC (Fantastic!), and Assembly Language up and running.

I'm very satisfied with the system and hope to get a floppy disc system this year. The system is used primarily to store confidential patient records (in a secret code for extra protection), but it doubles as a bookkeeping and billing system and is also used for statistical work, games and household accounting. Other than that it's useless!

I recently attended the first meeting of the Washington-Baltimore Computer Hobbyist Club. About 90 people packed into a small meeting room rented at the Colony 7 Motel. The club elected temporary officers, arranged a meeting schedule, provided technical lectures and system demonstrations. The elusive Joe Cimmino was even there. We should have a newsletter going soon. We're meeting on the second Wednesday of every month.

Sincerely,

Page 7

I have a couple ideas that I have been toying with.

1) would it be feasible to design a graphics card for a TV using its raster scan with Intel's CCD chips(charge coupled devices). These chips are 64 recirculating shift registers of 256 bits apiece. They have maximum transfer rate of 2megabits/sec. It seems to me that because of their high density (16k bits/chip) and their architecture(64 independant registers) that they would be ideal for such an application.

2) How about a Micro based on Intel's 3000 series bipolar chips. These 2-bit slices(CPE) and controller chips(PMU) are extremely fast and capable of executing microcode at a clock rate of 10megaherzt(1 instruction/100 nanosec). I have gotten this idea from a data catalog that I received from them. They already have a developement package around it and I have sent for more information from them but have not received it yet. Another example of their fastness is register add time which is about 300nsecs for 16-20bit registers.

Thank You,

Dale Luck
Wayland Academy
Beaver Dam, Wis. 53916

Dale Luck
P.O. Box 372
Beaver Dam, Wisconsin 53916

please use this address if possible

TELESENSORY SYSTEMS, INC.

NEWSLETTER 9 - OCT., 1975

1889 Page Mill Road
Palo Alto / California 94304
Telephone 415/493-2626
Telex 348352

SPEECH PLUS* CALCULATOR ANNOUNCEMENT

TSI is now accepting orders for the SPEECH PLUS talking calculator. The price is

$395

with first shipments scheduled for February 1976. This low price, together with its powerful capabilities and high quality, means that a very convenient, hand held, completely portable calculator is now available to the blind.

Over a year of research and development has gone into designing the SPEECH PLUS from the ground up as a talking calculator for the blind. Advanced speech synthesis and integrated circuit technology have resulted in a unit which measures only 7" x 4½" x 1½" (18cm by 11.5cm by 3.8cm) and weighs about a pound (455 grams). The lack of moving parts (except for the keyboard and speaker) in SPEECH PLUS makes it a highly reliable unit.

The algebraic logic we have used is an easy, natural way for people to do arithmetic. For example, to add 3 and 4, one presses (and hears) "three plus four equals". To obtain the result, press a special "speak" key and you will hear "seven point oh oh". (The extra two digits are added to make monetary calculations easier). "Speak" can be pressed as many times as necessary to hear whatever is in the display. A volume control allows variable sound levels to suit needs at the time (classroom, library, etc.). For completely private listening, an earphone is included.

With its 24-word vocabulary, SPEECH PLUS has the capability of announcing every key pressed, so the wrong key cannot be pressed without your knowing it. A complete record of calculations can also be made with any tape recorder. Keys can be pressed as rapidly as desired; if SPEECH PLUS can't talk fast enough it will simply "clip off" the last part of one word and start saying the next (there is a switch for turning off the spoken keyboard verification so speech is only produced when the "speak" key is pressed).

Besides addition, subtraction, multiplication, and division, SPEECH PLUS does square root and percent. There is a memory register and an automatic constant feature which allows repeated or chain calculations with a minimum of keystrokes. SPEECH PLUS has eight-digit floating point decimal capacity. If a calculation results in a number that is more than eight digits, it says "overflow" and stores the most significant digits (the correct number can be obtained by separately multiplying the contents of the display by 10^8).

Several features result from our human factors study. The number keys are arranged in a "touch-tone" telephone format. This makes it easier and more accurate to learn and to switch between calculating and telephoning. The function keys are arranged for easy learning and convenient operation. There is a sturdy built-in metal eyelet which can be used as an attachment point for a carrying strap or tie-down security cable. SPEECH PLUS comes with a durable attractive naugahyde case with a strap for easy carrying on wrist or belt. There is a self-contained rechargeable NiCad battery and separate battery charger.

With its visual LED display, we think anyone, blind or sighted, who needs to make arithmetic calculations will find SPEECH PLUS the most convenient calculator they have used. Lists of numbers can be entered quickly without looking at the display, teachers can use it to demonstrate arithmetic to their classes, salesmen can compute orders while the customer follows by listening, etc.

First production prototypes of SPEECH PLUS will be ready this month. Full production units will be ready in February 1976. Since orders will exceed our production capacity for the first few months, it would be wise to get your reservation in now. As an extra incentive, we will include free with the first 200 calculators purchased on the attached order form a booklet on Games and Applications (to be published by Dymex Publications) being especially prepared for SPEECH PLUS by Drs. Silvasalem Thiagerajan and Harold Stolovitch of the Center for Innovation in Teaching the Handicapped, Indiana University, and by Loren Schoof of TSI.

Fill out the attached SPEECH PLUS order form now for earliest possible delivery to you in 1976.

*SPEECH PLUS is a trademark of Telesensory Systems, Inc.

TSI's NEW FIELD REPRESENTATIVES IN THE UNITED STATES

Bill Kuhn, who will be working out of Houston, Texas, joined TSI in August and will be responsible for TSI representation in Texas, Nebraska, Kansas, Missouri, Oklahoma, Louisiana, and Arkansas. His address is P.O. Box 2564, Houston 77001 and his telephone is 713/526-6065.

Bill, who has a Master's Degree in Political Science from Rutgers University, was formerly Field Representative for Wadsworth Publishing Company of Belmont, California and covered Texas, Louisiana, and Mississippi while in this position. His interests include real estate restoration ventures, stamp collecting, trains, bridge, sports, gourmet cooking, and a little stock car racing on the side.

Jack Gilson will be working out of Atlanta, Georgia and will be responsible for Tennessee, South Carolina, Georgia, Mississippi, Alabama, and Florida. Jack received his MA in Government from Ohio University, has taught Junior High School U.S. History and Civics in Augusta, Georgia. His address is 417 Valley Hill Road, K-6, Riverdale, Georgia 30274. His telephone number will appear in the next Newsletter.

Diane Jackson will be covering the New York City area, beginning in October. She has a M.Ed. in Orientation and Mobility from Boston College and has been coordinator of the O & M program at the New York Institute for the Education of the Blind for the past three years. Diane and her husband are just getting settled into their new home, which is at 118 Braunsdorf Road, Pearl River, New York 10965, telephone 914/735-9223.

SPOKEN WORD OUTPUT FROM YOUR OPTACON???

Would you like to have an accessory unit plugged into your Optacon which would speak the words as you scanned them with the Optacon camera? This question has concerned the Optacon engineering group since the 1960's when the Optacon was being developed at Stanford Research Institute and Stanford University. A feasibility study sponsored by the National Eye Institute was conducted by this group at SRI from 1968 to 1970 which considered and tested many alternative approaches toward meeting the unfilled reading needs of the blind. The results of this study (which were widely circulated in a final report in 1970, several published papers, and several public presentations) led to the conclusions that:

- The Optacon should be widely disseminated as a portable reading aid to provide for many reading needs of the blind as a stand alone device.
- It appears technically feasible to develop an accessory to the Optacon which would provide spoken word output. This accessory would be plugged into the Optacon I/O connector and would perform the optical character recognition (OCR), orthographic-to-phonemic conversion, and speech synthesis functions (either in an accessory electronic unit at the user's location or remotely via telephone lines).
- **With this accessory, reading rates up to 200 words per minute could possibly be achieved on a restricted but very useful set of type styles and documents. These could be achieved by a blind user hand tracking with an Optacon camera (automatic scanning could also be provided for by an Automatic Page Scanner (APS) if desired).**

The conclusions from the 1970 study directly affected the Optacon design in that provision was made, through the Optacon I/O connector, for the later addition of this spoken word accessory if it could be developed. Thus purchasers of the Optacon would be able to make use of this accessory when and if developed, but in the meantime they would have all the capabilities the Optacon provides. Since this study in 1970, no possibilities for funding the development have been identified. Now, five years later, progress in OCR, speech synthesis, and integrated circuit technologies, together with the success and wide dissemination of the Optacon, make the possibility of such an Optacon-based spoken word system even more likely.

We at TSI would like to hear from our Newsletter readers regarding this subject. Your comments can have an important influence on decisions resulting from such questions as:

- Would an Optacon accessory which provided spoken word output and reading rates in the 100 to 200 word per minute range on a restricted set of materials be useful to you? Could you list the applications you envision as being most important?
- Would you prefer to interact directly with the text by hand tracking or to have the extra equipment complexity and expense of automatic tracking?
- Would you view such an accessory as a system to be personally owned or as a system to be in libraries, agencies, schools, and industry for the use of Optacon owners?

Please write to us at your earliest convenience and let us know how you would react to the availability of this type of system.

A more efficient medium which invites people to do calculations frequently, accurately, and conveniently, TSI's SPEECH PLUS™ calculator

- verifies all keystrokes and answers with 24 words from earphone or self-contained speaker.
- is hand-held, rechargeable, portable (7" x 4½" x 1½").
- has +, −, ×, ÷, %, √‾, automatic constant (for 1/X, X², discounting, etc.) independent memory, floating point decimal, memory swap (with display), change of sign key, and algebraic logic.
- uses a keyboard TSI developed with layout and keys selected for maximum accuracy during non-visual operation
- allows Silent or Announced entry. Even when the calculator is talking during an announced entry, it will register new keystrokes, it won't ignore them.
- automatically abbreviates words if and when entry rate exceeds speech rate. Even during Announced Entry operation, the user dictates entry rate.
- uses custom-designed calculator and speech-generating integrated circuits.
- comes with print, braille, or cassette instructions.
- can be ordered now for February, 1976 delivery. Price includes padded vinyl case, earphone, charger, instructions, and shipping charges.

The SPEECH PLUS™ calculator also . . .

- simplifies monetary calculations by announcing at least 2 positions following the decimal point in an answer. (It then suppresses insignificant zeros.)
- announces low battery and overflow conditions.
- allows overflow recovery.
- has a pull-turn on-off volume control for volume pre-setting before use.
- provides over 3 hours of continuous speaking use between recharges and has a battery extender circuit to limit discharge during silent times.
- comes with
  - —a shock-resisting CYCOLAC case with speaker facing back to prevent damage
  - —a 1/10" continuous segment, red visual display for sign, 8 digits, and decimal
  - —a metal attachment point for theft-inhibiting tie-down cables.

24 WORD VOCABULARY

one, two, three . . . oh, plus,	clear
minus, times, over, point,	times minus (to change sign)
equals, percent, root	swap (to exchange memory and display)
M ("em" precedes "plus, minus,	low
swap, clear, overflow," or "equals")	overflow

JEFFERSON MEDICAL COLLEGE
of
THOMAS JEFFERSON UNIVERSITY

Department of Neurological Surgery

Philadelphia, 19107
(215) 829-6745

March 23, 1976

I am interested in medical applications of microcomputers and would like to hear from anyone else who has similar interests.

I have the Ohio Scientific Instruments #300 board with the MOS Technology 6502 chip and plan to add more memory and some I/O chips. I also have an 8008 system which is partially completed with 8K. Our department has on order an Altair 8800 with line printer and dual floppys. I plan to do brain wave analysis with the Altair as well as laboratory and patient data handling.

Sincerely,

Richard Moberg

Richard Moberg
Biomedical Engineer
Dept. of Neurosurgery

Hi:

My name is Bruce. I used to follow your group closely when I was living in Southern California. When I moved to Berkeley I no longer had friends that received the newsletter so I hove been out of touch for half-a-year.

Please enter my name on your subscription list and send the next six issues.

Now for some questions-

1) I've got a box of parts to build the mark 8 but haven't had the time. It looks like spring break will be my next chance. I seem to remember from the 1st issues that there were some errore in the construction article. Do you have a comprehensive errata sheet you could send to me? I'd like to make corrections on the project as I go; not after its done.

2) I also think if I'm remembering right, that Motorola had available a monitor-debugger for the 8008 in 2k of prom. Is this true? And does anyone have a listing of the machine code for it or an equivalent? What is available as software on the line of a monitor, editor,or debugger?

3) Will you please send me the name of an 8008 enthusiast in berkeley, or very near by that gets your magazine. Perhaps this person would let me look at some past issues and help orient me properly.

I would greatly appreciate it if you could take a few minutes to send a note back to me in answer to my questions. I'm sure things have changed a great deal since I last read a newsletter.

Thank you for your time. I'll be looking forward to hearing from you.

Sincerely yours,

Bruce Harris

Bruce Harris

Thanks for the copy of the Mark-8 article. I am sorry to say it was pretty horrible. I was unable to duplicate it. I will hold on to it unless you say otherwise.

I am still trying to make a decision on the micro for me, meanwhile I am working on the I/O devices. Maybe you could offer a suggestion on a unit -- I want to be able to run in BASIC since I am able to use it now and am down to: MITS ALTAIR 8800 or a SWTP 6800 with lots of additional memory on either one.

Hope you can shed some light on this or I will have to flip a coin. Maybe you can suggest a better unit than either (I would like to keep it under $1 K for openers).

Thanks

Dave Metal, 28 Splitrail Road
Commack, NJ

I desperately need direct contact with RGS-008A system owners who have their system up and working and know program entry techniques, including: cassette, keyboard, tty interfaces (at least). Would like info on TVT-1 program for interface as well. All related expense would be gladly reimbursed. The system is basically sound. I've seen much of it working at RGS, but I couldn't get what I needed there before I moved.

Gerald McKee, Box 992, Okmulgee, OK 74447
(918) 756-2978

Gerald also mentions, "I'm going to school to be brought up to date in electronics (taking machine language this semester) and when I finish I hope to find employment back in California. I'm a TV broadcast engineer and am hoping to qualify for experimental/developmental field, also a ham "W6ZQT".

Hi,

While setting-up the Mike-2, I found a need for a memory test routine low-priced 2102's aren't too reliable! Borrowing heavily from the NL's, digital group, and Mike 2 monitor, I came up with a test routine that checks every bit combination between any two designated addresses. This routine writes writes a bit-pattern, checks for correctness, and if correct advances to the next memory location. . ., etc. If the compare is false, then the location is displayed, the test pattern, and the contents of the location, the display repeats until interrupted or aborted. If the "continue" key is used, the routine continues with the next address, of course if "reset" then we are back in the monitor routine.

Of course I made liberal use of the Mike-2 Monitor's display routines, Time-Wait routines, and input keyboard. Essentially, the routine-

```
Start    Load "B" with zero's
         Load "A" from "B"
         Write "A" into memory
         Read memory into "A"
         Compare "A" "B"
         False - Go to error routine (M2N display routines)
         INcrement "L" and/or "H" (as needed)
         Go to start
```

After all locations are tested, "B" is incremented, routine repeated, ... until 3778.

This routine is by no means a very efficient routine. It does test all bits between the designated addresses, and displays the problem and location. If you're interested, I'll supply a source listing.

And thanks loads for the effort you people out west are putting out.

P. S. In answer to your comment on "CACHE" - our steering committee has tall goals and lots of amition. But we really have you to blame, for without the Newsletter, there wouldn't be any local groups!

Tate
2951 S. King Dr.
Chicago, IL 60616

Dear Hal & John,

You've GOT to keep going! How else am I going to be able to decide which system to start into when I finally get the bread together???

Right now I'm thinking to hold off for a 16 such as PACE, IMP-16, or LSI-11. Looks like with CPU's prices dropping you might as well get the most flexible and powerful CPU you can find 'cause the peripherals are going to be most of the cost anyway. But then maybe I ought to leap in with a small system to play xxxxx around with first. On the other hand..... See what I mean?

Jn

Jan R. Wilson
3132 Eugene St
Baton Rouge, LA 70808

Jay Woods, Box 956, Yakima, Wa 98907 (509)248-5189 reports that his 12K Altair with Compter II and cassette I/O arrived 6 weeks after he ordered it. He wants to interface it to a Dura Mach 10 soon. He needs a schematic of the Dura Mach with reader, punch and punch control, the maintenance manual for Dura additions to the basic typewriter, and the Typewriter Adjustment Manual.

Bro. R.W. Harris, Essex Catholic HS, 300 Broadway, Newark, NJ 07104 has a Mk-8, TVT I, and 8-level paper tape punch up and running. He plans to interface a paper tape reader soon. All the equipment will be used in a Digital Design Techniques course to be offed to seniors at the school.

---

73 magazine for radio amateurs

Wayne Green W2NSD/1 603-924-3873
Publisher

PETERBOROUGH, NEW HAMPSHIRE 03458

22 Feb 76

Dear Hal,

Re the FCC letter in the latest Newsletter...I'm very sorry to see that published...and I suspect the FCC will be sorry that it was published too. Not that you had any way to know...I really should have written you about this.

The fact is that the FCC was given very little information to go on by Charnock and, lacking that, they assumed some things which are not so. As soon as I got a copy of the FCC letter to Charnock I called the FCC and talked with them...and explained about the importance of being able to experiment with computers via amateur radio. The FCC had not realized that computers would be an actual part of an amateur radio station...they assumed from the Charnock letter that radio would just be used to tie two computers together and that would be that...not that computers might be an active part of the communications link. When I had explained this to them they asked that I put it in writing for them and file it with them...this has been done.

I have been given to understand that the FCC actually has no objections to any amateur radio type of experimenting, and this certainly includes computers via amateur radio. Where Charnock went badly wrong was when he tried to get permission to do something which was already permitted...or at least not prohibited. I am given to understand that amateurs interested in computer experiments have but to write to the FCC requesting Special Temporary Authority (STA), giving the rational and parameters (to develop computer assisted amateur communications...and needing ASCII permission) and the FCC will give permission. Such experimenting can then be done and a report made to the Commission.

When I approached the Commission for ASCII on the low bands just before Christmas they explained that they had no serious objection, but that since there were no petitions on file or requests for such permission from amateurs, they really had better things to do. So much for any claims that amateurs have been clammoring for ASCII...not one formal request!

Keep up the good work with your Newsletter...always enjoyable! 73---Wayne

The following letter was received from Sphere Corporation. Part of the seperation involved rights to the Micro-Sphere. If you ordered a Micro-Sphere, it may be in your best interests to contact Sphere immediately and find out where your order status stands. Please let us know what you find out.

SPHERE CORPORATION

March 13, 1976

TO WHOM IT MAY CONCERN

Sphere Corporation, manufacturer and distributor of fine Micro Computer Systems announces the resignation of Michael D. Wise as President, and as a member of the Board of Directors.

We are very proud and pleased to announce Monroe C. Tyler as acting President of Sphere Corporation. He was one of the originnl incorporators. Mr. Tyler has an appropriate background receiving his Masters Degree in Computer Design from University of Southern California in 1968. He was privileged to attend USC under a Hughes scholarship. Monroe has been responsible for the design and development of the Sphere System 1,2,3 & 4.

Sphere Corporations product direction will be to continue refinement of the System 310 thru 340 (the former System 1-4).

With Mr. Tyler at the helm, Sphere Corporation is beginning the acquisition and development of Business applications with which the new System 500 series (a larger version of the System 4 with a 80x25 character display) will be marketed into the Small Business Environment.

Filling the position of Senior Vice President, Douglas S. Hancey will provide valuable management support to Mr. Tyler. Doug has been responsible for Sphere Marketing and will be assisted by Randall L. Waters, recently named to the newly created position of Marketing Manager.

Under this amiable team, Sphere Corporation plans to aggressively market their products to the Non-Professional User market and the Small Business Environment.

Douglas S. Hancey

Douglas S. Hancey
Chairman Board of Directors

940 North 400 East • North Salt Lake, Utah 84054
(801) 292-8466

Three Programs from Randall L Webb, 123 Stratford Ave, Ventura Ca 93003.

A program for Binary Log Approximations. Location 100_8 is the data word, 101_8 is the integer portion of the answer, and 102_8 is the fractional portion of the answer.

```
Statement #1  LXI H, 100 000          8  JMP 006 000
              2  MOV A, M             9  INR L
              3  MVI B, 007           10 MOV M, B
              4  ANA A                11 INR L
              5  RAR                  12 MOV M, A
              6  JC 017 000           13 HLT
              7  DCR B
```

A Bit Reversal program. Location 110_8 is the data word, and 111_8 is the reversed word.

```
Statement # 1  LXI H, 110 000        # 11  ANI 376
             2  MVI D, 010           12  RRC
             3  MOV C, H             13  MOV B, A
             4  MOV B, M             14  DCR D
             5  MOV A, B             15  JNZ 007 000
             6  ANI 001              16  INR L
             7  ORA C                17  MOV A, C
             8  RLC                  18  RRC
             9  MOV C, A             19  MOV M, A
             10 MOV A, B             20  HLT
```

A program to determine Approximate Standard Deviation. The data list begins at location 200_8 and contains either 4 or 30_{10} elements. The number of elements is placed in statement #2. For a list of 30_{10} elements, insert an RRC instruction between statements number 23 and 24. Location 251_8 will contain the maximum, location 252_8 will contain the minimum, and location 253_8 will contain the approximate standard deviation.

```
Statement # 1  LXI H, 200 000        # 14  JNC 007 000
             2  MVI C, 004  (or 036) 15  MOV D, A
             3  MOV B, M             16  JMP 007 000
             4  MOV D, M             17  MVI L, 251
             5  INR L                18  MOV M, B
             6  DCR C                19  INR L
             7  JZ 035 000           20  MOV M, D
             8  MOV A, M             21  MOV A, B
             9  CMP B                22  SUB D
             10 JC 025 000           23  RRC
             11 MOV B, A             24  INR L
             12 JMP 007 000          25  MOV M, A
             13 CMP D                26  HLT
```


If you are interested in micro-programmed processors, look into this deal. It looks like a real buy on the components. If you are not an electronic whiz, don't bother.

Thanks to Glen Charnock, Editor of Overmodulation for the following April feature, reprinted from their April issue. Computer people are well known for their propensity to use acronyms for almost anything. Some very important ones are SMILE? KISS, and DIMWIT. SMILE - Simplicity Makes It Less Effort. If the logic of a program is kept as simple as possible it will be easier to understand and to remember where you are when writing the program. It will also be easier to modify and it is a natural law that as soon as any program is proven to work up to spec, the user will change his mind about what he wants. KISS - Keep It Simple, Stupid. This is a more forceful reminder of the above. DIMWIT - Documentation Is A Must, Without It. After writing a program it should be well documented so that you can easily refresh your memory of how the program works when you have to change it six months later. All programmers are familiar with the effects of a bug in a program which will cause the program to "blow". The operation of a program is well captured by the following piece of doggerel, source unknown: A program is like a nose, Sometimes it runs, Sometimes it blows.

STEPHEN GRAY'S AMATEUR COMPUTER SOCIETY

Stephen Gray continues to deliver extremely valuable information in his Amateur Computer Society Newsletter. He has been compiling a list of descriptions of hobby systems and is now up to number 34. I've reprinted a couple of things from V3, No. 14.

It's no fun at all trying to run an organization like his without an adequate number of participants. Please send off $5 for a membership. If you can't afford to, get 5 guys together and split a membership. All clubs should order the back issues for the club library. When you start to feel that you can't afford another publication, think about it for a minute. One piece of good info can easily save you the $5 membership fee! Can you afford not to be a subscriber?

The Amateur Computer Society is open to all who are interested in building and operating a digital computer.

For membership in the ACS, and a subscription to Vol. III of the Newsletter, send $5 to:
Stephen B. Gray
Amateur Computer Society
260 Noroton Ave.
Darien, Conn. 06820
The ACS Newsletter will appear every two or three months.

27. The Dyna-Micro kit will supersede the Radio-Electronics Mark-8. A microcomputer learning system, it comes with a series of books on learning the 8080 and the system, and is scheduled for introduction in the May-June R-E.

The Dyna-Micro will be marketed by its manufacturer, E&L, as the Mini-Micro Designer, MMD-1, featuring the 8080A MPU, with everything on a PC board, including 16-key keyboard and 24 LEDs, plus a built-in interfacing breadboarding socket. Keyboard entry is controlled by a ROM, and the 256 words of RAM are expandable to 512. The complete set of parts and boards is $350; assembled and tested, $500.

VIATRON COMPUTERS

Verada 214 (38 French St., Box 438, Lowell, Mass. 01852) got 20 of the Viatron 2111 Microprocessors, hopes to get more. The 2111 "is a complete computer with keyboard input, two cassette tape drives built-in, a video display, an operating system on ROM.... Guaranteed working when they left our plant": $699, FOB Lowell.

Meshna (E. Lynn, Mass. 01904) is offering the "System 21," which appears to be the same unit offered by Verada 214, "sold as it; due to 4 years of storage, may require some adjusting/cleaning"; $425, FOB E. Lynn.

Note that these units are no longer being manufactured, and that most of the mechanical parts (and perhaps some of the electronic parts) are thus not available if needed for repairs. A letter to Interface cries out: "HELP! I have a Viatron model 2101 that doesn't work. Would appreciate contact with anyone who could provide technical information or programming assistance...." Caveat emptor.

Scelbi Drops Hardware

Scelbi Computer Consulting is no longer manufacturing either the 8H or the 8B, but is concentrating on software, and at the moment is working on BASIC for the 8008 and 8080 MPUs. Other MPUs are being considered for future software.

Incidentally, the Scelbi "Machine Language Programming for the 8008 (and similar microcomputers)" is highly recommended by many microkit manufacturers, and is now in a second edition, typeset on both sides of the page (the first was all in Teletype capitals, on one side of the paper), still $19.95 (1322 Rear, Boston Post Road, Milford, Conn. 06460).

23. The OSI 300 from Ohio Scientific Instruments (P.O. Box 374, Hudson, Ohio 44236) is a wired trainer using the MOS 6502 MPU with 128-word RAM, 7 address switches, 8 data switches, displays that indicate data, address, and program execution, lab manual with 20 experiments; $99.

OSI has an interesting alternative: Send in $110, get a 315 computer trainer (identical to the 300), return it within 60 days, and you receive three PC boards (superboard, I/O board, video board) and software for TV typewriter and audio cassette monitor, for a system based on either the 6502 or 6800 MPU. To quote from the OSI Feb/Mar flyer: "The 6502 is currently the fastest N-channel microprocessor available.... It is also very inexpensive in small quantities and features an internal clock. These features are very important to the hobbyist on a budget, especially if he doesn't have a good scope. The 6800 is somewhat more expensive and requires an external clock. It is rated for a 1-us cycle time and therefore can operate at only one half of the speed of the 6502. It does feature two accumulators and a more extensive instruction set than the 6502. Therefore, the potential user should carefully consider it when real-time applications are not anticipated."

24. Techtra Corp. (130 Webster St., Oakland, Calif. 94607) will offer the TMC 112, "a replacement for the PDP-8," with operator's control panel, up to 32K of core or semiconductor memory, "a complete range of peripherals," etc. Based on the Intersil 6100 MPU, the TMC 112 is still in prototype, they tell me.

I will now update some of the material that appeared under my name in NL #12, which I received Nov. 28,1975.

First, with regard to the Motorola microcomputer kit (page 4) built around the MC6800, the price of 6800 microprocessors and MC 6870 oscillators has been dropped 60% to $69.00 and $33.00, respectively, for quantities under 100 and unit quantities. This should make the kit cost less than the original figure of $300. The above information was obtained from the Oct. 1975 Micro Computer Digest, pg. 7. No address given for the kit but Microcomputer Digest is P. O. Box 1167, Cupertino, CA 95014.

The six volume microcomputer course by Iasis, Inc.(on page 14 of NL #12) now has a price of $99.50 according to page 23 of the same issue of Microcomputer Digest. Shortly after I wrote you about this(several months ago) there was a full two page ad in Popular Electronics by Iasis, Inc., Suite 154, 770 Welch Road, Palo Alto, CA 94304 selling the course for $99.50.

With respect to the item on the Hewlett Packard HP-65 calculator item, on page 13 of NL #12, as of Nov. 13, 1975 there were 3800 programs in the U. S. Contibutor's Library. Publication of the new catalog supplement has been delayed due to new programs being included. There do not appear to be any new Pacs or increase in the European Users Library; the above information was obtained from the Oct.-Nov. 65 Notes

I have heard very little about the new Texas Instruments SR-52, except for an ad in the Scientific American. It has a little over twice the number of programming steps and twice the number of registers of the HP-65. The price is about half. TI sells programs, but I don't know what or how many.

Yours truly,

David W. Johnston

David W. Johnston
P. O. Box 3781
Washington, D. C. 20007

12/1/75

Here is my $6.00 and SASE for the next 6 issues. Please don't stop there. You mentioned that the local club's newsletters would eliminate the need for the Micro8. Not so! How about us guys out in the boon-docks? I only found two other names on your subscription list in the whole county. We need you to provide us with timely information.

Now as to where I'm at. I have an Altair 8800 with 4mHz 4A dynamic memory. Had to send the memory back to MITS where all memory chips were replaced before it would work (they claim they got a bad batch of chips). Anyway it works great now. Ordered an I/O module by phone from Processor Technology Co. in Berkeley, used master charge, and received it in three days. Can you believe such super service? It has a lot of flexability built into it to allow operation with any I/O device. I have also ordered their Video Display interface and expect delivery any day now. The cassette tape system they have under development sounds great too because it will allow complete computer control of tape motion as well as data transfer.

For the present I am building the Pk mIT cassette because it is simple. Also have a model 15 TTY. I am planning to use the computer to control a telephone switching network.

Well that's about it I guess. Keep up the good work.

Sincerely

George Buttles

[illegible] 3, 1975
P. O. Box 201
[illegible], Ga. 30609

George Buttles

Dear Hal or appropriate other:

I received the back issues that I requested with my subscription order. The quality of reproduction in NL 1 to 4 is atrocious. I cannot read any of thex diagrams and much of the text. What I can read is good, but surely something can be done to make back issues readable. I am very unhappy about it.

Second: my vote for continuing the NL. Charge whatever is necessary. If you do decide to keep on with it, I'd be delighted to contribute discussions on systems software (editors, assemblers, compilers, etc.) since in real life, that is my thing. (Hardware isn't--took me 6 mos. to get my Mark 8 up and running.) Right now I am working on its operating system...but I think I'm going to have to interrupt and make a hardware stack before completing it, though.

C.H. Claxton
131 Johnstone Dr.
San Francisco, Ca. 94131

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hansen associates

electronic manufacturers representative

PO BOX 806 RIDGEWOOD, N.J. 07451 • TEL. (201) 652-7055 (212) 947-0379

First off, I would like to tell you how much I enjoy your newsletter. It is super.

I have been getting the feeling that, after everyone has gotten their microprocessors and memorys together, they will then realize the need they have for I/O Devices. I have some Remex Readers, Model # RRK2080. This is an 80 cps eight track tape reader which requires +5V @ 600ma and 24V @ 1.1 a. It is small and sells new for $300. We will offer these to whomever is interested for 1/3 off. They are slightly used, but are fully operational and we guarantee them for thirty days. In addition, we will send literature on these readers to anyone who sends us an SASE.

If interest is strong enough we might also be able to offer a tally star wheel reader for approximately $50 to $100. These would be "as is", but they are still in good shape. We would probably tear some down so we could make parts available to the hobbiest.

Enclosed is $6.00 for Volume 2 Newsletters, 1 through 6. I have also enclosed a data sheet on the RRK2080 Reader as it might provide answers to any of your questions.

If you decide to put our name and address in your newsletter telling about our "For Sale Items", please use the following address:

Ron Boley
Hansen Associates
P.O. Box 806
Ridgewood, N.J. 07451 201-652-7057

Sincerely yours,

Ron Boley

[illegible], 1975 Superior Rd, Apt 8, Cleveland, Oh 44118 (216)371-9304,

[illegible]es that the Mod-8 board is available from Moducomp in Canada, and will plug into the Mod-8 backplane with no modifications. A Cleveland Digital Group has been formed and is growing in leaps and bounds. He is working on something for the 8008 based systems which will make a lot of people very happy when they see it, but has asked us not to say more at this time.

Dr. C.S. Bauer, EMS Dept, Box 25000, Florida Technical University, Orlando, FL 32816 (305)678-2413 reports the following equipment in use there: one Nova 1220 with 24K and disk, one Mk-8 with 2K 1101s, two M6800 Designer's kits, one 8080 breadboard, and one Intel 3000 series configured to 16 bit works. Sounds like enough to keep anyone interested.

Robert B. Schwartz November 30,1975

MO 3-5549 375 RIVERSIDE DRIVE, 1E
NEW YORK, N. Y. 10025

I'm enclosing $6.00 for the next six issues of The Newsletter. I'm sure you've already reached the 350 renewals required for its continuation. The no. of micros and peripherals on the market seems to be increasing geometrically, and Micro-8 really is necessary to sort it all out.

Your last issue helped some of us in the New York City area form a local group. 15 hobbyists met on Nov. 14 at LaGuardia Community college in Long Island City, Queens. We'll meet Dec. 12, Friday, at 6:30 P.M. at the same place and it looks like we'll continue to meet there on the 2 nd Friday of the month. We welcome all fellow hobbyists.

Sincerely,

Robert Schwartz

Robert Schwartz

GLADSTONE ELECTRONIC SUPPLY CO. LTD.

1736 Avenue Road
Toronto, Ontario M5M 3Y7

TELEPHONE (416) 781-6811

Dec 30/75

Telex 06-22085 AVETRON TOR

Memo from R. GLADSTONE

If you can continue to publish the Newsletter, please do so. It's absence will be missed by all who are trying to enter this fascinating new hobby.

This is the view from up here in Canada, and personally, I'm sure it is being echoed by many Americans as well.

The writer is considering issuing a Canadian Newsletter, or information exchange,to assist in the formation of local groups across Canada.

We know of a individuals in Ottawa, Toronto and Waterlon, all in Ontarion, who would like to get a local club going. There are probably others, and if any individuals will write to me personally at the above address, I will try to get these people in touch with each other .

Keep up the good work, and if subscription funds are necessary to keep going, please advise.

Best regards,

R Gladstone

Russ Gladstone

To reply, use other side and return this memo to the writer.

TREK TOURNAMENT PRESS RELEASE

Trek Competition™ is promoting Trek 75™ — an advanced interstellar computer simulation.

Compete in a tournament using the original Trek 75™ , written by William K. Char, an advanced battle simulation computer game based on the T.V. series "Star Trek".

The game can be played thru any terminal/telephone hookup on the time share systems of GRM Systems, Inc., of Mountain View, Ca. Free assistance available for new accounts. Check local computer store for terminal time.

First mission will run from April 12, thru April 16, 1976. Top three players will share 75% of the entry fees(40%-25%-10%). Entry fee $5.00. Regulations available for $2.00. Prepaid computer account $10.00. Make checks payable to Commercial Information Systems. Please include SASE on all inquires.

Trek Competition™
2580 Westford Way
Mt. View, Ca. 94040.

Thank you.

Kenneth Young
3311 West 3rd Street
Apartment 1-319
Los Angeles, California 90020

March 3, 1976

Sincerely,

Kenneth [illegible]

I don't know much about your organization except that the PCC newspaper made some very favorable comments about you. I just purchased an IMSAI 8080 and am real enthusiastic about the computer hobby field. I hope that your newsletter will help me to develop that interest.

SCCS
MICROCOMPUTER SPECIALS

- AMI S6800 CPU $33.95
- AMD 8080A CPU $29.95
- GI CP1600 16 bit CPU........$74.95

6800 PROGRAMMING MANUAL.......$15.00
CP1600 PROGRAMMING MANUAL.....$15.00

Each Microprocessor packaged individually and are direct from the factory. AMI 6800 is pin and functionally equivalent to the Motorola 6800. AMD 8080A same as Intel.

- AMI S6860 MODEM $24.00
- AMI S2350 USRT Universal Synchronous Receiver/Transmitter.......... 9.95
- AMI S6820 PIA Peripheral Interface Adapter.......... 9.95
- AMI S6850 ACIA Asyncronous Communications Interface Adapter.......... 9.95
- AMI S1883 UART 5.75
- GI AY5-1013A UART 5.75

- AMD 2102-2 STATIC RAM $1.99
- AMD 21L02 Static RAM 2.35
- AMD 2112 STATIC RAM 3.25
- EMM 4402 4K STATIC RAM..... 12.95

AMI S6810-1 128X8 RAM....... $5.25
AMI S6834-1 512X8 EROM...... 22.95
AMI MM5204A 512X8 EROM...... 23.75
Intel 1702A 9.50

P.S.
It appears the same thing may be available thru the Homebrew computer club at $142. Contact Ray Boaz (415 494-7400 Ext: 5855, 9-4 Mon-Fri.

•PROTO KIT•

SPECIAL SCCS GROUP BUY (25 KITS) ..$199.00

AMI EVK 100 PROTOTYPING KIT. FEATURES INCLUDE ALL THE FLEXIBILITY & CAPABILITY OF THE MOTOROLA EXORCISER CONTAINED ON ONE PCB.

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(1) 10½ X 12 PCB
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(2) 6830 ROM (Monitor Program)
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(1) Prototype Manual

MAJOR FEATURES: 2K Bytes ROM, 2K Bytes EPROM, 768 Bytes User RAM
256 Bytes Dedicated RAM
EPROM Programming
TTY Interface
Selectable DMA Mode

This was also available at the last SCCS meeting and illustrates some of the great advantages of being a member of a large active organization.

First Class

COMPUTER HOBBYIST CLUB DISCOUNT RATES FOR MICROCOMPUTER DESIGN

CLUB DISCOUNTS . . . . Special computer hobby club rates for *MICROCOMPUTER DESIGN* are available on orders placed by bona fide club groups. The quantity rates are based on shipment of books in bulk to a single address at one time. The minimum order to qualify for a club discount is 10 copies.

QUANTITY	10-24	25-49	50-99	100 up
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TERMS . . . . To qualify for special discount rates, club orders must be paid in advance.

Martin Research, 3336 Commercial Ave., Northbrook, IL 60062 • (312) 498-5060

This was passed out at the last SCCS meeting. Don't know whether it still applies but you can try if your interested

MICRO-8 USER GROUP
CABRILLO COMPUTER CENTER
4350 CONSTELLATION ROAD
LOMPOC, CA 93436