

MICRO-8 COMPUTER USER GROUP NEWSLETTER
HAL SINGER & JOHN CRIAG -- EDITORS
CABRILLO COMPUTER CENTER
4350 CONSTELLATION ROAD
LOMPOC, CA 93436

SEPTEMBER 10, 1975
VOLUME 1, #11

THE LONG AWAITED ROSTER IS FINALLY HERE. OUR PRESENT MAILING LIST OF ABOUT 900 NAMES IS INCLUDED IN THIS ISSUE. NEWSLETTER #12 WILL CONTAIN ANOTHER 800-900 NAMES AND ADDRESSES OF PEOPLE WHO HAVE REQUESTED SAMPLE ISSUES BUT HAVE NOT SUBSCRIBED AND A ZIP CODE CROSS REFERENCE FOR THE COMBINED LISTS.

SO MUCH GOOD MATERIAL IS WAITING TO BE PUBLISHED THAT IT HURTS TO USE THIS MANY PAGES FOR A ROSTER BUT ONE OF OUR FUNCTIONS SEEMS TO BE TO GET PEOPLE TOGETHER AND FOR THIS THESE ADDRESSES SHOULD BE INVARIABLE.

HOT NEWS

-
- 1) THE RUMORED MITS ALTAIR-880 IS HERE. READ ABOUT IT IN THE NOV. POP ELECTRONICS. AT \$293 (INTRODUCTORY PRICE UNTIL DEC. 31) YOU CAN'T BEAT THE PRICE WITH A STICK IF YOU WANT A 6800 CPU. THEY HAVE IT ALL PLANNED OUT FOR THE XMAS MARKET COMPLETE WITH A PROMISE OF A CARD IF THEY CAN'T DELIVER BY XMAS. LET'S SEE WHAT KIND OF DELIVERY THEY CAN COME UP WITH THIS TIME THRU. BART DICARLO, 308 N. BRADFORD ST., SEEFORD DELAWARE, 11973 ORDERED ONE BY TELEPHONE FROM MITS AND THEY DIDN'T KNOW THE PRICE AND DECLARED HIS THE FIRST ORDER. DICK AND LOIS HEISER OF THE COMPUTER STORE, 11656 W. PICO BLVD., LOS ANGELES, CA 90064 (213) 478-3168 HAVE A PREFERRED DELIVER AGREEMENT WITH MITS AND THEY ACCEPT BA & MC CARDS SO YOU MAY WANT TO CONSIDER ORDERING FROM THEM. I'VE ORDERED ONE FOR THE CABRILLO COMPUTER CENTER THRU THEM.
 - 2) THE 8080 WILL SOON SELL AT \$30. THAT'S THE 100 QUANTITY PRICE ANNOUNCED BY A LARGE 2ND SOURCE. THAT APPARENTLY MEANS THAT LARGE SUPPLY HOUSES CAN SHORTLY SELL THEM AT \$30 IN SMALL QUANTITIES ACCORDING TO A SOURCE IN THE KNOW.
 - 3) INTEL IS RUMORED TO BE TIRED OF COMPETING IN THE CUT-THROAT COMPONENTS MARKET AND WILL PROBABLY DROP SOME KITS ON THE MARKET SOON AS WELL AS GOING MORE INTO SYSTEMS. ONE RUMOR HAS IT THAT AN INTEL 8080 KIT WILL SELL COMPLETE FOR ABOUT \$280. ANOTHER THAT INTEL AS WELL AS ROCKWELL WILL HAVE A SINGLE CHIP FLOPPY DISK CONTROLLER.
 - 4) MOS TECHNOLOGY IS ALSO RUMORED TO BE LOOKING AT THE KIT MARKET. THEIR MCS 6501 & 6502 CHIPS AT \$20 & \$25 EACH LOOK GOOD. SEE BYTE #3 FOR ADDITIONAL DETAILS.
 - 5) BILL GODBOUT HAS RUN INTO SUPPLIER PROBLEMS WITH THE PACE SYSTEM WHICH IS ALSO SLOWING DOWN DEVELOPMENT ON THE MSI-11. HE HAS SOME NEAT ALTAIR RAM & PROM PLUG COMPATIBLE MEMORY BOARDS AND IS OFFERING 2102'S FOR UNDER \$2 EACH. SEE BYTE #3 FOR HIS AD. ALSO WRITE FOR THE INFORMATIVE PACE KIT INFO.
 - 6) JOHN BURGOON, SOLID STATE MUSIC, 1222 CAROLYN DR., SANTA CLARA, CA 95050 HAS CANCELED PLANS FOR THE 8080 SYSTEM IN LIGHT OF THE RUMORS REGARDING KITS AND SYSTEMS FROM THE BIGGIES. THE WELL UNDER \$200 ALTAIR 8K MEMORY BOARD IS SLOWED DOWN BECAUSE THE ENGINEER WORKING ON IT IS WORKING 7 DAY 12 HOUR WEEKS AT HIS REGULAR JOB. JOHN IS LOOKING FOR SOMEONE ELSE TO CARRY ON THE PROJECT. JOHN DOES HAVE SOME SPECTACULAR DEALS FOR US. FOR THE ALTAIR 8800 OWNERS:
MB-2 (4K 2102-1 500 NS ALTAIR MEMORY PLUG IN) - KIT \$100, BOARD \$20
I/O-1 (ALTAIR PLUG IN, 2 COMMITTED I/O PORTS - LARGE KLUGE AREA THAT HOLDS 34 WIRE WRAP SOCKETS) KIT - \$35, BOARD \$20
I/O-2 (ALTAIR PLUG IN, HOLDS 2 INPUT PORTS, 2 OUTPUT PORTS AND A UART PLUS A SMALL KLUGE AREA OR CAN HOLD 8 1702A PROMS. VERY VERSATILE BOARD) KIT \$35, BOARD ONLY \$20

FOR MARK-8 BUILDERS & OTHERS:

MB-1 (4K 2102 MEM BOARD 86 PIN EDGE CONNECTOR) KIT \$100, BOARD \$20
UB-1 (KLUGE BOARD, MATCHES ABOVE) \$18
UB-1A (SAME AS UB-1 BUT BOARD MAKER GOOFED & USED GREEN BOARD) \$15
1702-\$10, 1702A-\$14, 2101-\$5, 2102-\$2:100/\$150, 2102-1-\$2.50:100/\$200,
2 102-2-\$2.25:100/\$175, 18212-\$4, DM8097-\$1, DM8131-\$1.50, DM8834-\$1.50
M O R E D E T A I L S O N I/O-2 I N N L #12. I T'S N E A T F O R T H E A L T A I R 8800 U S E R!!

7) NOT ALL RUMORS ARE TRUE. BYTE SUBSCRIPTIONS SEEM TO BE NEARER TO 10,000 AND THE FIRST ISSUE WASN'T MOSTLY ADVERTISING. CARL HELMERS AND WAYNE GREENE HAVE ACCOMPLISHED A MAJOR MIRACLE. THE FIRST THREE ISSUES HAVE BEEN SPECTACULAR AND FUTURE ONES SHOULD JUST GET BETTER. YOU HAVE TO SUBSCRIBE!! WRITE BYTE SUBSCRIPTION, PETERBOROUGH, NH \$12 PER YEAR.

8) MARTIN RESEARCH IS NOT DELIVERING MEMORY BOARDS & I/O BOARDS YET. 8080 BOARDS ARE BEING ADVERTISED AND WE CAN'T EVEN GET DELIVERY ON THE 8008 SYSTEMS. JOHN FORD AND I HAVE A SUDING TVT, KEYBOARD, SUDING CASSETTE, HITS CASSETTE SYSTEM, AND SOON A CREED INTERFACE WORKED OUT IN WIRE WRAP. WE'LL SEND YOU A COPY IF YOU'LL SEND US INFO ON YOUR MIKE-2 PROJECT, SOFTWARE YOU HAVE WORKING ETC.

9) THE DIGITAL GROUP IS SENDING OUT 3 FLYERS THIS MONTH ANNOUNCING THEIR NEW DEVELOPMENTS. WRITE THEM IF YOU ARE NOT ON THEIR MAILING LIST. WOULD YOU BELIEVE A PHI-DECK CONTROLLER FOR UP TO 4 DECKS, 370 CPS, ERROR RATE (1 WEEK TEST 2 PROTOTYPES) SOFT (1 RETRY) 1/3 MILLION, HARD 1/14 MILLION. NOT YET BUT SOON AND FOR WELL UNDER \$200.

10) FORMATION OF LOCAL GROUPS IS OCCURRING AT A DIZZYING RATE. NEARLY 500 PEOPLE ATTENDED THE LAST LA GROUP MEETING. AN ACCOMPANYING PROBLEM IS THE PROLIFERATION OF SPECTACULAR NEWSLETTERS. TO REMAIN CURRENT YOU MUST OBTAIN A COPY OF EACH CLUB'S NEWSLETTER. IF YOU TRY TO BUY EVERYTHING, YOU'LL END UP WITH HUNDREDS OF DOLLARS EXPENDED SIMPLY ON LITERATURE. THE SOLUTION IS ELUSIVE. TO PUBLISH A LARGE INFORMATIVE NEWSLETTER COSTS MONEY (FAR MORE THAN MOST PEOPLE REALIZE). A PARTIAL SOLUTION IS TO TRADE NEWSLETTERS AMONG LOCAL GROUPS AND SET UP A LENDING LIBRARY. WIDESPREAD UTILIZATION OF COPYING MACHINES SEEMS APPROPRIATE BUT CAN BE SOMEWHAT SELF-DEFEATING SINCE LACK OF PAID SUBSCRIBERS NECESSARILY MEANS A SMALLER NEWSLETTER. MINIMIZING AN INDIVIDUAL'S EXPENSE AND MAXIMIZING HIS EXPOSURE TO ALL THE NEWS IS ESSENTIAL. SUGGESTIONS ARE REQUESTED.

11) HEATHKIT IS VERY SECRETIVE BUT MAY COME OUT WITH SOMETHING VERY SPECIAL WITH LOTS OF DEVELOPMENT MONEY BEHIND IT. THEY ARE STILL CLAIMING THAT THEY ARE NOT SURE THERE IS MARKET POTENTIAL IN HOBBY COMPUTERS.

12) TWO CANADIAN COMPANIES ARE OFFERING MOD 8 AND 80 SYSTEMS. WRITE MODUCOMP INC., 75 CALIFORNIA AVENUE, BROCKVILLE, ONTARIO, CANADA K6V 5Y6 (613) 342-5041 AND GREAT NORTHERN COMPUTERS LMTD., 41 CLEOPATRA DRIVE OTTAWA, ONTARIO, CANADA K2G 0B6 (829) 255-9640 (GREAT NORTHERN EXPECTS TO BE ABLE TO SUPPLY SOME GREAT HAM RADIO SOFTWARE).

13) I'VE PROMISED MANY PEOPLE LOTS OF THINGS AND DELIVERED ON A LOT OF THESE REQUESTS. HOWEVER MANY OF YOU MAY HAVE GOTTEN IGNORED. IF I WAS SUPPOSE TO SEND YOU SOMETHING, DROP ME ANOTHER NOTE AND AT LEAST YOU'LL GET A NOTE WITH THE REASON WHY I CAN'T DELIVER OR THE ITEM YOU NEED.
THANKS, HAL SINGER

M I C R O - 8 N E W S L E T T E R S U B S C R I P T I O N I N F O R M A T I O N

ISSUES 5 - 12 \$6.00 MAILED FIRST CLASS

BACK ISSUES 1 - 4 \$3.50

MAKE CHECKS PAYABLE TO CABRILLO COMPUTER CENTER
4350 CONSTELLATION ROAD
LOMPOC, CA 93436

Ken A. McGinnis
Box 2078
San Mateo, Ca. 94401

Dear Hal,

Can you believe the Mark 8 Newsletter had its first anniversary on 14 September? I still have my blue copy. Keep up the good work.

An update on the Phi-Deck: My cost is \$84.78 and this will increase a little October 15th. I can still deliver for under \$90 in the U.S. (Plus tax if in Calif) I'm now having cabinets built for either 1 or 2 decks. I have ordered the new bidirectional Deck with I.C. controller. Anyone who ordered an old-style deck from me can convert it cheaply. More on that later.

After reading the last newsletter I wrote to Mincom about their cassette decks. They were very prompt and most helpful. Several models are available. A solenoid operated deck with one AC motor is \$74. A stereo P/R head like the Phi-Deck cost \$7.20 extra. Wow and flutter is said to be .25%. If anyone wants this deck I will order and try to get a quantity discount.

Since the Phi-Deck specs are much better (W&F .17 or less) and since several companies are building controllers I don't plan to get the Mincom unit now. As far as reliability goes probably both decks will outdate before they break down. Phi-Decks have been used for years in language labs and they are completely reliable.

The Homebrew Computer Club still meets every other Wed. at 7PM at the Stanford Linear Accelerator Center and everyone is welcome. Our Newsletter is \$6 for 12 issues. Write to Bob Reiling, Homebrew Computer Club, Box 626, Mountain View, Ca. 94040

Sincerely,


Ken

6515 Kenview Drive
Cincinnati, Ohio 45243
September 24, 1975

I believe you should continue your newsletter after the first of the year. I believe it fulfills a need for the computer hobbyist in areas where no other publication covers.

I eagerly look forward to each issue. It is newsy, technical, practical etc. I am a subscriber to several other publications, but yours fills a gap the others do not.

I wish you would publish more information if you have it about Martin Research equipment and the results users have had with it. I would like to see some professional comments on the equipment and what it has and does not have to offer compared to others. True they did away with the lengthy readout on the front of it, but a friend of mine in this area advises the place he works they tried to do the same with their computer systems and when they ran into trouble wired up the stuff Martin says not needed. I have not been able to determine if Martin had really some other features which supplemented the did away with circuitry. 3

I have built up a Dr. Suding TVT and acquired a Clare Pender keyboard from Philadelphia which I had trouble with TM S5000NC chip in being bad. Several versions of why including that I attempted to operate it with out removing the black grounding material. I thought first that was protecting it from mechanical abuse. I since have determined that stuff very conductive to short out electrical fields in transit, but a good friend of mine advises some times when this stuff not removed you can blow the chip if you try to connect it to power. Another friend connected his to power with the material on and it did not work till he took off, but it did work then. So does it or does it not in some cases blow up the TMS5000NC. TMS5000NC not directly available from Texas I. either, you must go back thru keyboard mfg as it a special deal for that keyboard alone. Dr. Suding now also marketing same keyboard but have no other info.

Edward Zibulka

the digital group

po box 6528, denver, colorado 80206

October 3, 1975

The Digital Group is extremely excited about new products we have in store for the month of October that we believe will be of great interest to hobbyists and club members.

Dr. Robert Suding has been working with the Digital Group full time and has been busily putting the finishing touches on all parts of his systems. With all due modesty, we think you will find Dr. Suding's systems and all the peripherals as nifty as we do -- at very competitive prices.

We want your club members to find out for themselves just how good our quality is, so we have decided to offer a tempting special reduction on Dr. Suding's original TV Readout Kit. The regular price of \$95.00 has been reduced to \$75.00 for the same high quality full parts kit. That's a savings of over 20%.

In addition, if 10 kits are purchased from the same club and shipped to the same address, we will discount the price an additional 10% (or \$67.50 per kit).

This is an example of the discounts we expect to be giving clubs making group purchases. With our increased volume and broader product line, we can pass along savings to clubs like yours.

Neat, huh?

The Digital Group

RE: SOFTWARE DEVELOPMENT:

Dear Mr Singer;

To assist your cause in developing software for microprocessors I would like to offer some help:

We are opening a timesharing service covering (213) and (714) areas from Los Alamitos by end of September 1975. The system will support NOVA machine language and a very advanced BASIC suitable for sophisticated business applications.

We have a simulator for INTEL 8008 which has to be cleaned up and some rudimentary portions of a BASIC interpreter written in BASIC for plugging in the macros for various hardware instruction sets. This timesharing service will support upto 300 baud terminals and can be made available for \$ 3.00 /hr after 5:00 pm MO to FR, all day Saturday and Sunday. There is a nominal charge for CPU time and disk storage.

For further details we would appreciate inquiries with SAE; we plan major refunds for the programs which are of interest to others in the form of royalties from use of those programs.

Any suggestions will be considered.

Sincerely yours,


ERNST SCHUBERT.

QUIKDATA

Turnkey Software

ERNST J. SCHUBERT Ph.D., Prof. Engr. EE.

(213) 421-0124 & (714) 826-5033

POB 851 Los Alamitos 90720

The MOD 80 Documentation Package

The MOD 80 is a microcomputer system designed around the 8080 CPU. This system is designed to run with the powerful Monitor 80 Software. The Monitor 80 can accept and dump symbolic code, execute breakpoints and display the 8080 registers flags and the contents of memory pointed to by the H and L registers. Further the Monitor allows one to examine and modify the contents of memory from a keyboard in octal, perform octal dumps, load the system in octal and allows for the copy and translation of code so it can be run in another section of RAM. The system also has a prom programming routine for 1702AS. This Monitor runs in 2-1/2K of memory -

A basic MOD 80 consists of:

- A teletype I/O board
- An 8080 CPU Board
- 2K Static RAM Boards
- 2K 1702A Prom Boards
- A 3 8-bit output port board
- A 3 8-bit input port board
- A backplane or mother board with integral 1702A Prom programmer.

The boards for the system are double sided plated through and are of exceptional quality. They cost \$ 13.00 a piece except for the backplane which is \$ 26.00 and are available from

Space Circuits
156 Roger Street
Waterloo, Ont. Canada

I feel that this system is very cost effective, well designed and represents an intelligent alternative to such systems as the Altair or Mark 8. I have a system up and running and I am very impressed with its performance. The Monitor with its symbolic input and output capabilities both speeds and eases programming. The installation of peripheral devices is simple. The system when constructed is not a barebones installation but rather allows immediate and powerful use of the 8080.

I am selling a Documentation package for this system which includes -

- A description of Monitor 80 commands
- The Monitor 80 listing
- Parts lists
- Component placement diagrams
- Schematics
- Debugging hints
- Documentation on the MIL tape interface
- 8080 software for the tape interface

The cost is \$20.00

A Documentation package is also available for the MOD 8, an 8008 Microcomputer System with much of the same specifications as the MOD 80. This system is upward compatible with the MOD 80.

The cost is \$ 10.00

Also an update of the MOD 8 documentation with all information needed to upgrade a MOD 8 to a MOD 80 is available. This update includes everything in the MOD 80 Documentation Package not in the MOD 8 Documentation Package.

The cost is \$ 10.00

ROBERT SWARTZ

195 IVY LANE

HIGHLAND PARK, IL. 60035

I am quite impressed with the digital groups TV readout. It is one of the first of a new class of very inexpensive peripherals. The T.V. readout consists of one printed circuit board which is attached to a latching 8 bit output port. The board puts out a composite video signal which will drive a T.V. monitor or a properly modified T.V. set. The design uses a 7 x 9 character generator and has a density of 32 characters per line and 8 lines. The character set consists of 128 different characters including upper and lower case ASCII Greek lower case and a number of special symbols. Because of the low density of the readout and the 7x9 dot matrix the display is large and very readable.

The board puts out composite video and there are three ways to attach it to a T.V. One is to get a monitor (which I did.). The second is to modify a television which will probably require an isolation transformer and the third is to build a small transmitter.

I am told that transmitters tend to add jitter to the display. The board, the crystal and the character generator were purchased from the digital group for \$50.00. TTL was purchased from Gerber Radio Supply in Dedham, Ma. The 1101 memory was from some surplus stock I acquired. The prices for the display are as follows:

\$20.00 for character generator
50.00 for P.C. board crystal and character generator
95.00 all parts and board
125.00 assembled and tested.

There was about a month delay in delivery but I am told that now this device or kit is being delivered from stock.

The kit went together easily and worked essentially the first time. The documentation consisted of a parts list, some directions for testing, components placement and schematics. There were additionally some notes on software but the main software support is contained in a separate digital group package which costs \$7.50.

As for the performance of the unit, it must be realized that this board is not a teletype replacement. The system has a few quirks first to output a character you must first output the character and then output 000 to clear a oneshot in the write circuitry. Second, the device has no cursor, but this problem can be partially solved by filling the screen with all periods. Also Phil Mork has a modification that allows an invisible cursor to be added. The display does not accept carriage returns or line feeds, so lines need to be blank filled. Everything considered, the T.V. readout is a very good, no frills, cheap alphanumeric display.

29 August 1975

Dear Hal,

Enclosed is a tape and dot layout for the Suding Cassette interface. We had considered selling pc boards for it, but our time constraints won't let us do so. People with Stampit-Etchit kits can use the pattern to lay out their own boards thereby skipping the hassle of trying to lay out the system with minimum jumpers, etc. There is only one jumper required (between the two small pads in the middle of the tone filter (left hand) section. There was about a three month lag between when I laid out the tape and dots and finally plugged the components. In the interim I managed to misplace the parts placement diagram. I had little difficulty figuring out where the components went simply by referring to the Digital Groups schematic included in packet #1. A word of warning though. Do not solder components until you have them all plugged in and are sure they are in the right spot. Even though I laid out the board, I still couldn't remember the rationale for some of the part locations!

The pinout connections from left to right looking down on the board from the foil side are as follows:

- | | |
|-----------------------------|--------------------------------|
| 1. Ground | 7. Not used |
| 2. Cassette speaker | 8. Input port Bit \emptyset |
| 3. Not used | 9. Output port Bit \emptyset |
| 4. -9 VDC (tone to digital) | 10. -9 VDC (digital to tone) |
| 5. +12 VDC | 11. +5 VDC (" " ") |
| 6.+5 VDC (tone to digital) | 12. Cassette mike |

Packet #1 from the Digital Group is absolutely essential for Mark 8 owners. The price is less than the xerox copying cost, and the information content is tremendous. While the TCH Cassette interface is a more thorough design with many more features, you can build Suding's version for less than \$5.00. Its worth twice that just to be able to use the cassette included with the Digital Groups packet #1.

I was very upset to read in the last newsletter that you were even considering giving up the Micro 8 Newsletter. NO,NO, a thousand times NO!! I get more enjoyment and information out of the NL than any of the other publications in the field. If you need more money, put out a call and I am sure the responce will astound you. Make one of the subscription requirements be a one page article. Charge for advertising. Do anything, but don't drop the newsletter!!

M-Tech Engineering, Inc will be at the ARRL National Convention at Reston, Virginia September 12,13, and 14. There is supposed to be a microprocessor seminar. Either my partner or I will attend (depending on which one of us is the strongest and quickest out of our booth) and we will try and get you a copy of whatever goes on for a future newsletter.

One last comment, I received my assembled Digital Group TVT and it works great. Delivery was a trifle slow, but nothing to really complain about. Not so delighted with their first newsletter. Thought the information content was well below the level established by TCH and the Micro 8 letters.

Lee S. Mairs c/o M-Tech Engineering, Inc., Box C, Springfield, Va. 22151

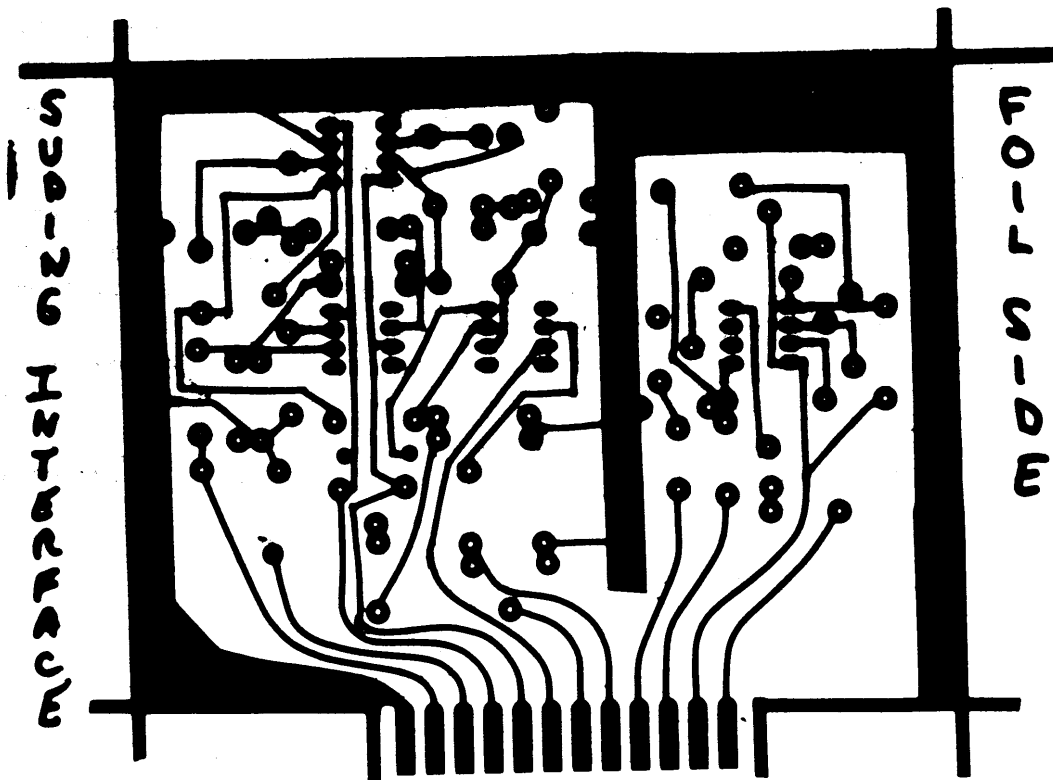
Construction Tips:

A great time saver that eliminates the drudgery of stripping insulation from small bits of wire when breadboarding on vector board can be had by using Belden's Beldsol enameled wire. When you solder with a tip temperature greater than 700 degrees, the enamel breaks down allowing a good solder connection. I wired the entire 160 pin per connector, 12 connector backplane using Beldsol #8054 which is a #28 enamel wire. I also used it to breadboard and finally build the Titus test probe mentioned in an earlier letter. By the way, the Titus probe is an absolute must for anyone owning, building, or thinking about building a micro-processor. For about \$3.50 in parts you have a poormans high speed scope. I have caught pulses as fast as 10 nanoseconds with it.

Whenever you suspect a bad chip in your Mark 8, sacrifice the IC rather than fight the hassle of trying to unsolder it. The odds on not lifting up some of the foil at the same time are prohibitive. Cut the bad chip from the board using a pair of small diagonal cutters, cutting the leads as close to the IC's body as possible. Having removed the chip, bend each lead slightly apart from vertical. Next take an IC socket of the proper vintage and solder its leads to the IC leads. As well as not lifting any of the pc board foil, you now have an excellent IC tester! This is a great help for future projects and for assisting friends building or about to build a Mark 8. I purposely sacrificed an 1101 in order to build an 1101 checker prior to installing IC's on my second K of 1101 RAM. Needless to say, having gone to all the effort to check the new 1101 RAMs, not a single one was defective!

Parts Available from M-Tech Engineering, Inc., Box C, Springfield, Va. 22151: (703) 354-0573
UA3656 256x1 RAMs equiv. to 1101 except faster--\$1.35 ea.
Opcoa SLA-1 LEDs seven seg. display, common anode--\$1.50 ea, 4/\$5.00, 9/\$10.00
Opcoa red LEDs \$.18 ea. or 7/\$1.00 Green LEDs \$.25 ea. or 5/\$1.00
Capacitors: 5ufd @ 15WVDC 15/\$1.00 100 pf. 50WVDC 40/\$1.00
115VAC-18VAC @150ma. transformer \$.75 ea. Include postage. Min. order is \$5.00

Lee S. Mairs c/o M-Tech Engineering, Inc. Box C Springfield, Va., 22151, 703/354-0573



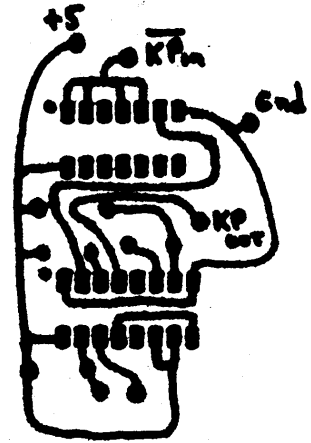
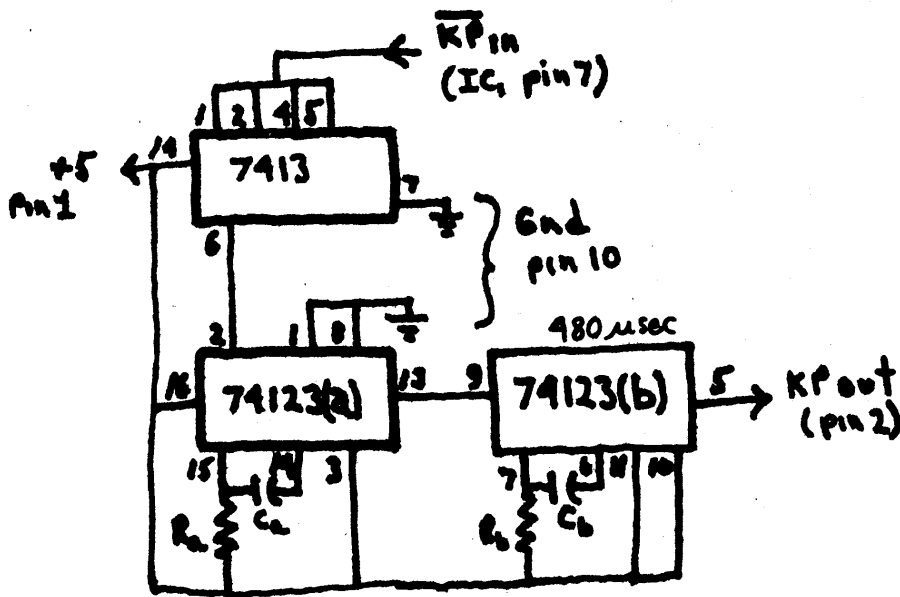
SWTP Keyboard Modification

Interfacing the Southwest Technical Products keyboard to a TVT becomes a cinch with the following modifications. As noted in an earlier NL, the keyboard keypressed (KP) strobe is a negative going pulse with a very slow rise time on the trailing edge. The 7413 serves to clean up the KP signal, while the 74123 dual single-shot multivibrator chip provides the approximately 500 usec. pulse width necessary for the Suding TVT software available from the Digital Group.

Only one change is necessary to make on the Keyboard printed circuit board, and it is readily put back to normal if you ever want to sell the keyboard. Simply break the foil between the KP pin on the output connector (pin 2). The input to pins 1,2,4, and 5 of the 7413 Schmidt trigger is connected to the IC1 pin 7 side of the foil break. The output of the 74123 (pin 5) is then connected to the output connector pin 2 side of the foil break. The +5 volts and ground are connected to pins 1 and 10 respectively on the keyboard output connector.

The foil diagram below can be used as a guide for those owning a Stampit-Etchit kit (available from M-Tech Engineering, Inc, Box C, Springfield, Va, 22151 for \$9.95 plus postage). The approximate time to make the pc board with the Stampit-Etchit kit was five minutes.

With the modification I am now able to type away without any of the undesired extra spaces and slashes that used to sneak in to the display. Since I had been convinced that I was going to have to spend another \$50 for a decent keyboard, I has already saved the money. This modification allowed me to use the money for another 1K of 1101 memory!



$$T_w = .4(R)(C)$$

$$R_a = 15K \frac{1}{4} \text{ watt}$$

$$C_a = .17 \mu\text{fd tantalum}$$

$$R_b = 12K \frac{1}{4} \text{ watt}$$

$$C_b = .1 \mu\text{fd tantalum}$$

F. General Comments on Suppliers vs. Hobbyists Responsibilities - This is just a chance for me to get a few things off my chest relative to the computer hobby market. I feel that some manufacturers or kit makers are taking unfair advantage of the hobbyists, and the hobbyists should not let them do it. These manufacturers start on less than a shoestring and promise fantastic computer systems and software using multi-page ads in the national magazines, elaborate fliers, and even mobile homes (caravans) showing one "working" system. Then they proceed to get lots of orders from the hobbyists, and only then do they begin to develop the systems that they've promised. Of course, by that time they're starting to get pressured to make delivery, and so what suffers most is the basic digital design (designs must be made, prototyped, checked, redesigned, etc.).

The hobbyist gets a pretty box full of electronic worms! Systems are generally cheap because shortcuts have been taken; power supplies tend to be underdesigned and grossly underfiltered (capacitors cost more than IC's), no thermal studies are done to ensure proper chip temperatures and power supply heat removal--- typically a fan is stuck somewhere on the box; debouncing and decoupling circuitry along with race conditions are seldom considered and the hobbyist burns his time up chasing "ghosts" throughout his system; underspec or even reject components are shipped with the hobbyist left to be the company's quality control feedback; etc. etc. Not only does the hobbyist get a bum design, but he gets it two or three months after he's been promised it. Also, if the hobbyist attempts to take advantage of the "guaranteed" maintenance, he may wait more than 6 months to get his machine back (maintenance is far less profitable than sales). Then in the midst of all of this "success" the company will renounce the hobbyists, in effect, by saying to the "real" computer community: "please don't just think of us as a hobby computer company, we're an OEM (Original Equipment Manufacturer) and have a machine that is far more than a toy for kids." It is a small wonder that the "real" computer boys don't listen or buy, especially once they've seen the logic diagrams and design characteristics.

So what causes this, and what can the hobbyist do about it? The hobbyist should recognize the fact that his money is GREEN! He pays first for what he gets; unlike many large companies who buy on purchase orders which say "you ship us a system and if after we get it we like it, we'll pay you for it in 90 days or so." Therefore, the hobbyist is well warned to carefully evaluate these systems and the quality of the company before he sends money. Use guaranteed credit card purchases where you can; clubs can join together and buy one sample system before everyone commits his check to the company. Call the company up and ask some technical questions about the machine; with luck you may get through all of the sales people, managers, and secretaries to that one poor wretch in the back room with an MS in Computer Science a few years back who's trying to make this "turkey" work. Maybe he can, but at who's expense?

I'd appreciate anyone's comments on the above opinions. I won't mention the names of any companies or computers that fit the above description; I keep my mits out of that kind of stuff and try to concentrate on my own sphere of activities.

by Mike Hayes, P.O. Box 367, Jamul, Calif. 92035, 22 Aug. 1975

GENTLEMEN (AND ALL THE PEOPLE CONNECTED WITH THE NEWSLETTER):

REFERENCE YOUR REMARK ON PAGE 2, VOLUME 1 #9 AS TO WHAT TO DO WITH THE NEWSLETTER...

CONTINUE IT IF AT ALL POSSIBLE!!!!!!!!!!!!!!

EVEN WITH "BYTE" AND THE OTHER NEWSLETTERS AND PUBLICATIONS AVAILABLE OR SOON TO BE AVAILABLE TO THE MICRO COMPUTER COMMUNITY, THE NEWSLETTER AND ALL OF US WHO MAKE UP IT'S MEMBERSHIP REALLY NEED THIS SORT OF FORUM FOR THE EXCHANGE OF IDEAS ON HARDWARE, SOFTWARE, AND PARTS AVAILABILITY. THE MICRO - 8 NEWSLETTER IS THE FASTEST WAY I KNOW OF TO GET SYSTEM MODIFICATIONS OUT TO THOSE OF US WHO ARE USING THE VARIOUS SYSTEMS...AND I COULD GO ON AND ON WITH REASONS WHY THESE NEWSLETTERS MUST CONTINUE...EVEN IF IT MEANS INCREASING THE SUBSCRIPTION PRICES (WHICH, WITH THE PENDING POSTAL RATE INCREASES IT PROBABLY WILL). I FEEL THAT MOST OF OUR MEMBERSHIP WILL CONTINUE TO CONTRIBUTE TO THE MICRO - 8 USERS GROUP WITH NEW SOFTWARE AND HARDWARE PROJECTS EVEN THOUGH OTHER PUBLICATIONS ARE WILLING TO PAY FOR THEIR EFFORTS.

ONE OTHER THING, MOST OF THE USERS APPEAR NOT TO BE CONNECTED WITH THE COMMERCIAL COMPUTER WORLD AND I WOULD CAUTION ALL OF THEM TO REALIZE THAT IF SHIPMENTS OF SYSTEMS OR PARTS SUPPLIERS SEEM TO BE A LITTLE (READ TERRIBLY) SLOW IN DELIVERY, BECAUSE OF ECONOMIC FACTORS AND THE SUPPLY AND DEMAND FACTORS WE OPERATE UNDER IN THIS GREAT COUNTRY OF OURS THINGS JUST DON'T ALWAYS WORK OUT LIKE WE THINK THEY SHOULD. I ECHO THE EDITORIAL IN THE COMPUTER HOBBYIST NEWSLETTER OF MAY...SOMETIMES WE ARE JUST TOO QUICK TO CRITICIZE WITHOUT KNOWING THE CONDITIONS SOME OF OUR SUPPLIERS ARE OPERATING UNDER. I'M SURE THIS HOBBY IS GROWING MUCH FASTER THAN MOST OF THEM REALIZED. OR US TOO FOR THAT MATTER. JUST ANOTHER REASON FOR CONTINUING THE MICRO 8 NEWSLETTER!!!

STAY WELL,

M. DOUGLAS CALLIHAN
R.F.D. # 1 BERKLEY ST.
BERKLEY, MASS 02780
AUGUST 26, 1975

M. DOUGLAS CALLIHAN

P. S. MY WORK ON THE "PHI DECK" PROJECT HAS BEEN TEMPORARILY HALTED DUE TO "WIFEITIS"...MY WIFE HAS HAD TONS OF LITTLE PROJECTS SHE WANTED DONE THIS SUMMER...IS ANYONE ELSE WORKING ON THIS TYPE OF PROJECT FOR THE GROUP??? WE CAN'T ALL AFFORD \$1,000 FLOPPY DISC SYSTEMS...

JUST RECEIVED THE SEP. ISSUE OF P.E., AND FOUND A GOOD ARTICLE IN THE "COMPUTER BITS" SECTION. SEEMS THEY ARE PROPOSING A STANDARD TAPE SYSTEM, HOBBYIST INTERCHANGE TAPE (HIT) SYSTEM. ALTHOUGH IT IS NOT SUTABLE FOR MY OWN TAPE LIBRARY, I THINK IT WOULD BE SUTABLE FOR TAPE INTERCHANGE. THE SIMPLICITY OF THE CKT., AND THE ACCEPTANCE OF SPEED VARIATIONS, PLUS THE CIRCULATION OF THE ARTICLE, WOULD LEAD ME TO BELIEVE THAT THIS COULD BE ADOPTED AS THE UNIVERSAL INTERCHANGE SYSTEM. I SUPPORT THE SYSTEM, AND AM IN THE PROCESS OF CONSTRUCTING THE CKT. AT THIS TIME.

I JUST RECEIVED MY SECOND; 4K MEMORY BOARD FROM SOLID STATE MUSIC. THE BOARD HAS PLATED THROUGH HOLES, HAS DECODE CKT ON THE BOARD, AND USED 2102 MEMORY I.C.s I AM MODIFYING MY BOARDS TO A SAVE BANK (ONE K) CAPABILITY. ONLY ONE I.C. IS NEEDED (7430), WHICH I FOUND ROOM FOR ON THE BOARD. SCHEMATIC ENCLOSED FOR MODIFICATION. IF YOU ARE IN THE MARKET FOR MEMORY BOARDS, CHECK WITH SOLID STATE MUSIC, THE BOARDS ARE THE BEST I HAVE SEEN.

SINCE I PLAN TO MODIFY MY COMPUTER FROM TIME TO TIME, I HAVE MADE MY BOARDS CAPABLE OF BEING UNPLUGED AND TAKEN OUT OF THE COMPUTER. I HAVE ALL MY BOARDS CONNECTED BY WIRE WRAP I.C. SOCKETS, WITH WIRE WRAP WIRE AS LONG AS 30INCHES. MY COMPUTER HAS BEEN UP AND RUNNING FOR TWO MONTHS.

SSG. J.W. PIERCE
460-84-4884
178th SIG. CO.
APO NY. 09102

SINCERELY,
Jackie W. Pierce
JACKIE W. PIERCE

Sept. 5, 1975.

Dear Hal & John:

I want to express my gratitude to you both for the fine job you are doing on the newsletter and to all the subscribers who have made such valuable contributions. It keeps a person's enthusiasm about three months ahead of his ability to keep pace!

I have completed the TVT-1, after many delays due to defective I.C.'s (Poly-Paks & I.E.U. both had a lot of bad ones when ordered over a year ago) My Mark-8 is more or less running; I have ordered a power supply from Grant Runyan which I hope will do the job. I finally obtained the Monitor -8 ROM from MiniMicroMart and hope to complete the UART for the TVT in the near future to allow interfacing the two. I have ordered 4 K of 2102's from Bill Godbout at his great price of \$1.95 but they haven't arrived as yet.

Bill was very prompt in supplying the 8008 and I have found James to be extremely quick and efficient with good quality material. However, I am very displeased with the following companies and would appreciate any help in either obtaining shipment or receiving a refund:

Challenge Electronics,
Box 3345,
Whittier, CA. 90605.

A pointless auto ignition system was ordered
(M.O. For \$49.50 was sent on Nov. 5, 1974)
Shipment not received.

Don Britton Enterprises,
P.O. Box G,
Waikiki, Hawaii.

Plans for a portable oscilloscope ordered,
M.O. for \$ 13.00 sent on March 12, 1975)
Shipment not received.

Delta Electronics,
Box 1,
Lynn, Mass. 01903

Electronic parts ordered,
M.O. for \$20.00 sent on April 21, 1975.
Shipment not received.

B & F Enterprises,
119 Foster St.
Peabody, Mass. 01960.

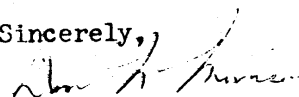
Electronic parts ordered, very small portion
of order received. Creditslip was returned
for cash refund- No reply.

My advice to anyone contemplating ordering from these firms would be to look elsewhere. Electronics is a great hobby but a lot of the fun is lost when most of your time is spent dealing with irreputable and inefficient dealers.

Don N. Morrison,
6407-150 Ave.,
Edmonton, Alberta.
T5E 1W7

Keep up the good work-we appreciate it !

Sincerely,



J. SCOTT WILLIAMS
P. O. Box 932
Bellingham, WA 98225

Sept 7, 1975

Dear Hal and/or John,

About what Micro-8 NL should do in the future...DON'T STOP.

At this point in time your (our?) NL is the only publication that is timely enuff to deal with "what's happening now". (That I've found, that is.)

If at some point in the future a "commercial venture" proves to be able to do the same thing, THEN is time for a review of Micro-8.

The Micro-8 NL is the only publication that I read cover-to-cover three(3) times. (TCH twice, FCC once, TIME I just skim.)

Now for the news from my end.

I received and built 3 4K RAM boards from MITS. These have 2604's (4K by 1 bit Signetic dynamic RAMS) substituted for Intel 2107's. At this point in time none of the boards work. It may be my fault, but in any case it will be my/MITS first failure as far as I'm concerned. Everthing else I've gotten from them worked(after I found my mistakes, if any).

While I was on the phone to them last week about my problem (I'm shipping them my "worst performing" 4K board tommorrow), I got a solution for a problem I was having with my MITS ACR cassette interface of getting one(1) byte of garbage as the first byte off the tape. It's caused by the UART getting one(1) bad data byte off the tape when the recorder is being stopped while reading in data. It is solved by doing a initial read from the data channel before entering the sense status loop on the flag channel. This clears the UART of the one(1) garbage byte if it exists and does no damage otherwise.

Because MITS Serial I/O board "C" (Serial TTY) send side sinks 20ma and my KSR-33 with a UCC-6 call control unit does the same on it's receive side, I modified the TTY to channel 20ma to the SIOC send loop(two(2) wires, lugs, tape, diagram included).

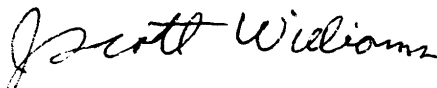
Ordered a VDM Video Display Modul from Processor Tech. (16 lines, by 64 characters, 1K on the board, software, \$160).

I also received from MITS an 8K version of BASIC until they send me the 12K version I ordered. The documentation is GREAT. I've seen and used a few BASIC's and this one is outstanding for it's size: n dimentional arrays(for strings too!), machine language "call" feature, Boolean operations, machine level I/O, computed GOTO and GOSUB, etc., plus all the "normal" stuff.

Of course I haven't used any of these neat features yet because of my memory situation, ^{but} if they work as documented I'll be happy.

That's it from Bellingham. Please keep up the OUTSTANDING work.

Yours,



J. Scott Williams

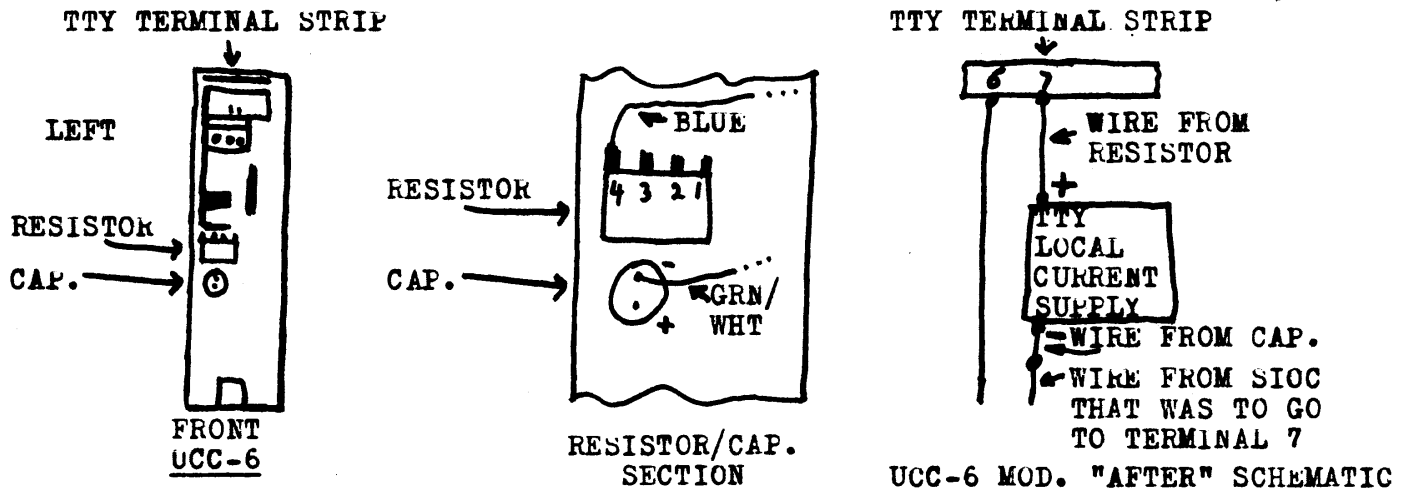
MODIFICATION OF KSR-33, UCC-6 Call Control Unit
for operation with
MITS 88-SIOC Serial TTY I/O board

Introduction: Because both the SIOC send and the UCC-6 receive circuits sink 20 ma for a mark, make the following electrical modifications to the UCC-6 to tap it's 20 ma local loop supply for Line operation.

INSTRUCTIONS:

1. If required, modify TTY/UCC-6 for full duplex, 20 ma operation.
2. Make connection as shown in MITS 88-SIOC documentation, except do not make the connection to terminal 7 on the TTY terminal strip.
3. Connect an additional 16" wire to the negative side of the UCC-6 filter capacitor. The cap. has a green/white wire on the neg. terminal and a green wire on the positive terminal. Connect the other end of the new wire to the lug of the wire from the SIOC that was to be connected to terminal 7 of the TTY terminal strip. After making the connection, tape it and tuck it in the corner of the TTY so conveniently provided.
4. Take another 16" piece of wire and connect it to terminal 4 of the UCC-6 current limiting resistor. This resistor is located next to the cap. mentioned in step 3. Terminal 4 of the resistor is the left hand terminal when the UCC-6 is viewed from the front. There should be a blue wire connected to terminal 4 of the resistor if the UCC-6 has been modified for 20 ma operation. Connect the new wire to the lug of the blue wire and re-connect the lug to terminal 4 of the resistor. (~~Impinched~~ the bare end of the new wire between the terminal and the lug. It was a good snug fit.) Connect the other end of the new wire to terminal 7 of the TTY terminal strip.
5. Test operation by connecting the TTY to the SIOC and noting that when the TTY is switched to Line, the TTY locks up on a mark.

Postscript: The connections I've made above may not be the best, but they are simple, easy to do and undo, and can be made without physically modifying the TTY, UCC-6 or SIOC.



Sep. 6, 1975

Dear Hal and John,

Just received the first issues of the newsletter and want to congratulate you for the great job you have done for all struggling hobbyists trying to get their systems up and running. Please don't stop. As you pointed out, new commercial ventures are appearing almost daily and everything in the field changes at a dizzying pace. To me this seems an excellent reason for a publication with no commercial ties.

I have an Altair 8800 with 2K memory (PTC) and a SWTP CT-1024 terminal. The 8800 - at the "indrotutory" price - seemed to be a good buy and I am very satisfied with it. I will not get into a discussion on the cost of add-ons and software offered by MITS. Enough has already been said on that subject.

Like everyone else, I have had my share of problems with the keyboard; from sticky keys to s/l/a/s/h/e/s. A software timing loop is temporarily taking care of this while I am looking for a better keyboard.

Another problem which has me baffled concerns the update rate of the display. with a simple home-brew parallel interface (8T97 enabled by address decode and CUT/WR) the maximum rate is about 60 cps. Dan Meyer at SWTP assured me that the claimed rates of 1080 or 540 can be obtained and the problem is probably in the interface. I wonder if anyone has been able to get these rates with an 8080 CPU. Bill Ames (NL #8) also mentioned the 60 cps rate with an 8008. I tried his suggestion and used IC-16, pin 9, as a "data accepted" signal without much luck. Timing differences between the 8080 and 8008? Any help would be greatly appreciated.

In the future I hope to be able to make a contribution to the newsletter. In the meantime keep up the good work.

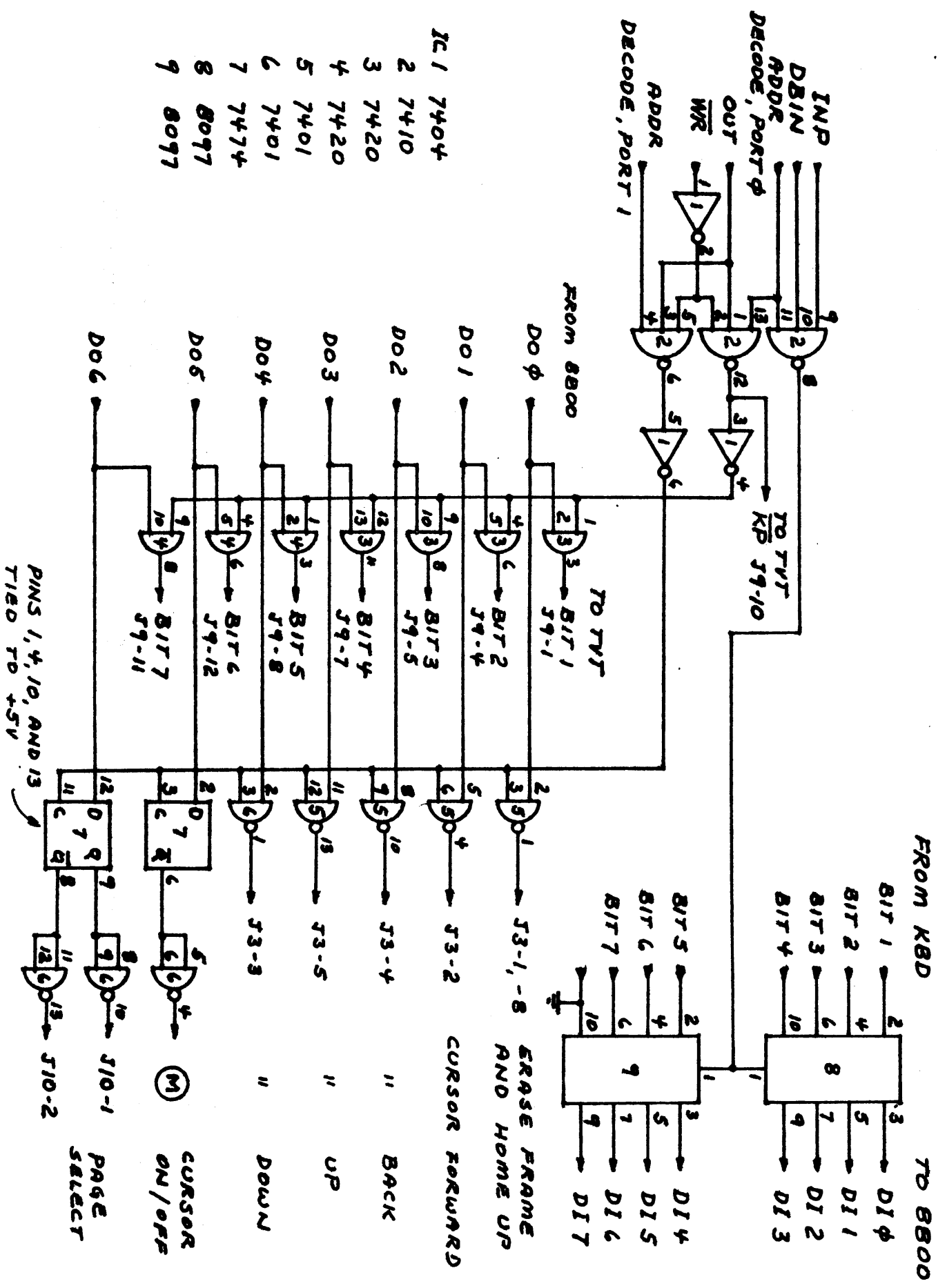
Enclosed is a schematic for a circuit I'm using to interface an 8800 with a TVT-2 and a Clare/Pendar keyboard. It was designed to be a simple an inexpensive parallel interface which also allows complete computer control of the cursor and page selection. One output port is used for character transfer and a second port for cursor control. Only a MVI and an CUT instruction is needed for all cursor functions.

All inputs are buffered with 74L04 and 7404 gates to conform to the 8800 bus loading rules. The keypressed strobe from the keyboard is connected directly to the INT line of the 8800 bus. Address decode is straight forward; the arrangement shown in NL #9 could be used. Manual control of the Erase Line, Erase Frame, and Home Up functions is still possible with separate switches to override computer control.

Bit assignments:

D0: ONE = Combined Erase Frame and Home Up
D1: ONE = Cursor Forward
D2: ONE = Cursor Back
D3: ONE = Cursor Up
D4: ONE = Cursor Down
D5: ONE = Cursor Off
ZERC = Cursor On
D6: ONE = Page 2 Select
ZERC = Page 1 Select

Adolph P. Stumpf
5639-A Ute
Glendale, AZ 85307
602-935-2053



BALANCING
OF ROTATING
MACHINERY

Please run the following add in the u-8 newsletter (unless you
or one of your close associates qualifies):

LASER
STRUCTURAL
ALIGNMENT

WANTED TO GIVE: If you were one of the lucky few who purchased
a motorized card reader manufactured by RCA from Delta
Electronics last fall, you probably need a case for it. I
have recently rebuilt my computer system in an all-rack-mount
format, and have a nice-fitting case with considerable sheet
metal work invested in it. I will give this to the closest
or most deserving respondent. Please reply to 601-726-5524
or Loomis Laboratories, Route 1 - Box 131, Prairie Point,
Miss.

SOUND &
VIBRATION
STUDIES

Thanks!

PROCESS
INSTRUMENTATION

TELEPHONE, 601- 726-5524
LOCATED 10 MILES EAST OF MACON, MISS.
ON HWY. 14
POSTAL ADDRESS, ROUTE 1- BOX 131- A
PRAIRIE POINT, MISS. 39353

Sincerely yours,

Sumner S. Loomis

Sumner S. Loomis

17 September, 1975

STRUCTURAL
RESONANCE &
STABILITY STUDIES

DATA PROCESSING
FOR MANUFACTURING
OPERATIONS

CUSTOM
COMPUTER WORK

August 29, 1975

Just finished up and tidied this Morse Code program.
Maybe the Hams in the group can get some use out of it.
It will send all of the letters and numbers, plus the
following symbols: ., / - " () ; : Extra symbols may be
added to the table easily. Cancel (ASCII 030) is used
to send the eight bits for error.

Input from the keyboard is buffered. The buffer is
located on page three. Since I have tape routines on
the second half of that page, I limited the buffer to
128 characters. If all of page 3 is available, replace
the instructions with a * by them with a NOP, and a 256
character buffer should be available. The current size of
the buffer in use is displayed on the front panel LED's.

I am using port 3 for my TVT, change location 01,170
if your TVT is on a different port. Likewise, change
01,163 for the appropriate input port for your keyboard.

The keyboard should be connected to interrupt the
computer when a key is pressed, and the Interrupt Instruction
port set to LCI (026).

The speed is determined by the constant at location
1,141. The following table may be used as a guide:

Constant	Speed
010	35 wpm
012	28
014	25
016	20
020	18
023	15
026	13
035	10

Sincerely,

Bill Ames

Bill Ames
1016 Oakland, Apt. #2
Ann Arbor,
Michigan 48104

MORSE CODE PROGRAM

Notes: Buffered, 128 or 256 characters
 Speed determined by constant at 01,141
 Set interrupt instruction port to LCI (026)

Memory Used: Program Page 1, 000-216 and RS-0
 Char buffer Page 3, 000-177 or 000-377 if available
 ASCII-Morse table Page 2, 000-377 (Sparse)
 KBD Ptr Page 1, 376
 Send Ptr Page 1, 377
 Current Character Page 1, 375

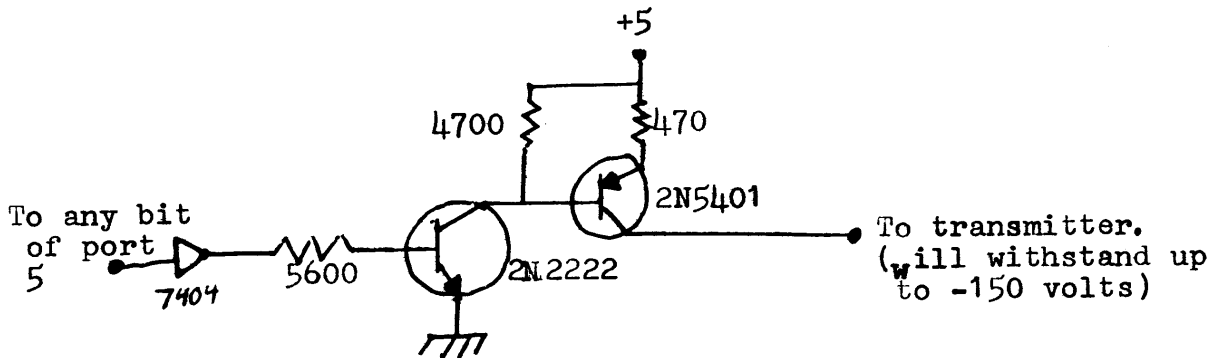
01,000 LCI 026	Clear KBD ready	050 INL 060	Point to Morse data
001 000 000	register	051 LAB 301	Check for 0 bits
002 LHI 056	Clear KBD ptr	052 NDA 240	
003 001 001		053 LAM 307	Get morse data
004 LLI 066		054 JFZ 110	If bit count not zero,
005 376 376		055 065 065	proceed to send character
006 LMC 372		056 001 001	
007 INL 060	Clear Send ptr	057 RSO 005	Bit count zero, assume
010 LMC 372		060 RSO 005	and send word space
011 CAL 106	Check KBD	061 RSO 005	
012 160 160		062 JMP 104	Get next character
013 001 001		063 011 011	
014 LHI 056	Get KBD ptr	064 001 001	
015 001 001		065 LHI 056	Store current character
016 LLI 066		066 001 001	
017 376 376		067 LLI 066	
020 LAM 307		070 375 375	
021 INL 060		071 LMA 370	
022 SUM 227	Subtract Send ptr	072 LHI 056	Get current character
*023 NDI 044	Keep it positive	073 001 001	
*024 177 177		074 LLI 066	
025 OT0 121	Show buffer size	075 375 375	
026 JNZ 150	If empty, try	076 LAM 307	
027 011 011	again	077 RLC 002	Move next bit into carry
030 001 001		100 LMA 370	Update current character
031 LAM 307	Buffer not empty;	101 JFC 100	If no carry, send DAH
032 ADI 004	increment send	102 116 116	
033 001 001	ptr	103 001 001	
*034 NDI 044	Stay in buffer area	104 XRA 250	Send dit
*035 177 177		105 OT5 133	Turn on keyer
036 LMA 370		106 RSO 005	Delay one unit
037 LLM 367	Get character to	107 LAI 006	
040 LHI 056	send next	110 377 377	
041 003 003		111 OT5 133	Turn off keyer
042 LAM 307		112 RSO 005	Delay one unit
043 RLC 002	Form table address	113 JMP 104	Proceed to next bit
044 LHI 056		114 127 127	
045 002 002		115 001 001	
046 LLA 360		116 XRA 250	Send DAH
047 LBM 317	Get bit count from	117 OT5 133	Turn on keyer
	table		

MORSE CODE PROGRAM, cont.

120 RSO 005 Delay 3 units	160 INC 020 KBD test routine,
121 RSO 005	161 DCC 021 set flags on C
122 RSO 005	162 RTZ 053 If c=0, no char. entered
123 LAI 006	163 IN1 103 Key pressed, get character
124 377 377	164 NDI 044 Mask parity bit
125 OT5 133 Turn off keyer	165 177 177
126 RSO 005 Delay 1 unit	166 LCI 026 Clear KBD ready register
127 DCB 011 Dec. bit count	167 000 000
130 JFZ 104 If not done, send	170 OT3 127 Echo character on TVT
131 072 072 next bit	171 CPI 074 Ignore if Line feed
132 001 001	172 012 012
133 RSO 005 Character sent,	173 RTZ 053
134 RSO 005 send char. space	174 CPI 074 Ignore if Carriage return
135 JMP 104 Get next character	175 015 015
136 011 011	176 RTZ 053
137 001 001	177 LHI 056 Increment KBD ptr
140 LDI 036 Delay routine,	200 001 001
141 020 020 set speed	201 LLI 066
142 LEI 046	202 376 376
143 100 100	203 LEA 340 Save new character
144 DCE 041	204 LAM 307
145 JFZ 110	205 ADI 004
146 144 144	206 001 001
147 001 001	*207 NDI 044 Stay in buffer region
150 CAL 106 Check keyboard	*210 177 177
151 160 160	211 LMA 370 Update KBD ptr.
152 001 001	212 LLA 360 Get KBD ptr
153 DCD 031 Check delay counter	213 LHI 056 Store character in buffer
154 JFZ 110	214 003 003
155 142 142	215 LME 374
156 001 001	216 RET 007
157 RET 007	

RSO: 00,000 JMP 104 Jump to delay routine
 001 140 140
 002 001 001

Interface for grid-block keyed transmitters:



Try HAL Communications for the 2N5401 (P.O. Box 365, Urbana, Ill. 61801)

ASCII-MORSE TABLE FOR MORSE CODE PROGRAM
(Located on Page 2)

<u>LOCATION</u>	<u>ASCII</u>	<u>LETTER</u>	<u>#BITS</u>	<u>PATTERN</u>
202	101	A	2	200
204	102	B	4	177
206	103	C	4	120
210	104	D	3	177
212	105	E	1	333
214	106	F	4	333
216	107	G	3	044
220	110	H	4	377
222	111	I	2	377
224	112	J	4	200
226	113	K	3	100
230	114	L	4	277
232	115	M	2	000
234	116	N	2	111
236	117	O	3	000
240	120	P	4	222
242	121	Q	4	044
244	122	R	3	277
246	123	S	3	377
250	124	T	1	000
252	125	U	3	300
254	126	V	4	344
256	127	W	3	200
260	130	X	4	144
262	131	Y	4	100
264	132	Z	4	077
060	030	cancel	10(8)	377
104	042	"	6	266
120	050	(6	111
122	051)	6	111
130	054	,	6	060
132	055	-	5	166
134	056	.	6	250
136	057	/	5	155
164	072	:	6	034
166	073	;	6	124
176	077	?	6	314
140	060	0	5	000
142	061	1	5	200
144	062	2	5	300
146	063	3	5	340
150	064	4	5	360
152	065	5	5	377
154	066	6	5	177
156	067	7	5	077
160	070	8	5	033
162	071	9	5	011

To form table:
Store number of
bits at location
given. Store
pattern at next
location.

THE TARBELL CASSETTE INTERFACE

SPEED: UP TO 540 BYTES PER SECOND (2200 BITS PER INCH).
187 BYTES PER SECOND STANDARD (FOR 300 BITS PER INCH).

ENCODING METHOD: PHASE-ENCODED (EXCLUSIVE-OR OF CLOCK AND DATA).
SELF-CLOCKING (CLOCK VARIES ALONG WITH TAPE SPEED).
USED EXTENSIVELY IN INDUSTRY.
IS THE ONLY PROPOSED ANSI STANDARD.
USED ON MY OWN SYSTEM FOR THE LAST 4 YEARS.

CASSETTE: WILL WORK WITH MOST CASSETTE UNITS. I USE A REALISTIC
(RADIO SHACK) CTR-19. TAPE SHOULD BE SCOTCH LOW-NOISE.

8 KBYTE LOAD TIME: 45 SEC @ 187 BYTES/SEC.
17 SEC @ 540 BYTES/SEC.

DEVICE-CODE SELECTED WITH DIPSWITCH.

STATUS: 4 EXTRA STATUS LINES AVAILABLE FOR INPUT.

CONTROL: 4 EXTRA CONTROL LINES AVAILABLE FOR OUTPUT, WHICH MAY
BE USED TO DRIVE RELAYS FOR EXTRA CASSETTE UNITS.

COMPATIBILITY: PLUGS DIRECTLY INTO ALTAIR 8800.

SOFTWARE: COMES WITH COMPLETE SET OF SUBROUTINES AND
DEMONSTRATION PROGRAMS.

COST: \$100 FOR COMPLETE KIT WHICH INCLUDES
DOUBLE-SIDED BOARD WITH PLATED-THRU HOLES AND GOLD EDGE CONN.
ASSEMBLY INSTRUCTIONS AND DRAWING
PARTS LIST
SOLDERING, CLEANING, AND INSTALLATION NOTES
PIN FUNCTION LIST
SCHEMATICS
INITIAL ADJUSTMENT INSTRUCTIONS
OPERATING INSTRUCTIONS
BOOTSTRAP PROGRAM
INPUT ROUTINE WITH CHECKSUM
OUTPUT ROUTINE WITH CHECKSUM
ADDITIONAL NOTES
CASSETTE WITH SAMPLE PROGRAMS AND TEST STREAM
ALL PARTS
CASSETTE CABLE
RIBBON CABLE
DIP CONNECTOR

DELIVERY IS 3 WEEKS AFTER RECEIVING ORDER, NO COD PLEASE.

CALL OR WRITE FOR FURTHER DETAILS

Donald E. Tarbell
DONALD E. TARBELL
144 MIRALESTE DRIVE #106
MIRALESTE, CA 90732
(213) 832-0182

CREED model 75 teletype with interface parts kit and manual (74 lb)
 (includes carriage return and repeat keys) - FOB Naperville, IL \$150.00
 Wood crate included - will be shipped Greyhound collect unless
 Indicated otherwise - please include your phone number

Lamp and photocell for counting punch operations (mounted) 1.00
 Original maintenance manuals on 4" x 6" microfiche 5.00
 Creed type characters (now available . , @ : + * ! 0 £)
 (available in 6 to 9 months ? = & % () ;) each 1.00
 Creed Manual - 26 pages of info on Creed, interface circuit, interface
 programs for 8008 and miscellaneous info. Credit will be given for
 later purchase of a Creed. POSTPAID 1.00
 Paper - Pin feed on roll, \$5 per roll, \$50 per case of 12
 Friction feed, \$2 per roll, \$20 per case of 12 (44 lb per case)

Paper tape winder(wind up) and 2 plastic reels - for 5 level tape-4 3/4 lb 5.00
 Paper tape - Pink, green, black or buff - \$.30 each or box of 10 for(10 lb)2.50
 Power distribution box - includes 3 wire cord, six outlets and switch
 in metal box. Wonderful for the work bench. (4 3/4 lb) 5.00
 Optical Scanner for use with bar codes. Has a variety of switches,
 motors, lens, photocell, power cord, etc. Includes schematic
 and article about original use. POSTPAID 15.00
 Power transformer(same as included in Creed interface kit)
 Two secondaries - 27v and 7v - appear to be high current (4 1/2 lb) 4.00
 Wire wrap boards - used, wrapped - bypass capacitors included
 14 - 16 pin sockets and 21 - 14 pin sockets (unwrapped \$12.50) 10.00
 P. C. card with mating 62 pin socket - 4" x 6" with MDTL IC's - useful
 for building circuits or using fingers for other boards such as
 the Mark 8 boards -or the wire wrap boards above. 1.00
 Front panel cards from Nuclear Data Minicomputers. Over 20 toggle switches
 display lamps, drivers(MDTL - compatible with TTL) and some with
 key switches, other switches and ribbon cable with matching conn. 15.00
 RS-232 connectors, 25 pins, male or female each 1.50
 Plastic case for RS-232 connector 1.00
 8 conductor cable, 2 are heavy power leads per foot .10
 50 feet of above cable with male RS-232 conn and case on each end(2 1/2 lb)7.00
 P. C. Cards
 Jim Fry's 4K 2102 board (not drilled) 10.00
 Roger Smith's Baudot to ASCII and ASCII to Baudot board

Integrated Circuits (prices reevaluated each month - We try to meet or better the
 2102-1 (500 ns) - less than 8 add 10%, less than 32 add 5%, 32 or more 2.50
 74LS138 Decoder (1 out of 8) 2.25
 1702A (256 x 8 programmable and erasable ROM) - programmed with 20.00
 Creed monitor for free
 MC8312 - TTL 8 x 1 multiplexer - same as 74151 but different pins
 8 of these gives you a full 8 input ports for microcomputer .50
 Can be used to impliment arbitrary functions

All IC's are POSTPAID

MIL monitor for use with Creed on 1702A's - distributed by Martin
 Research, 1825 S. Halstead St.;Chicago, IL 60608
 Available locally : IBM Selectrics, flexwriters, IBM punched card, ASR 33, RO 33,
 verifier which can be used under microcomputer control as a card reader.

Rixon TTY speed converter circuit pack with backplane connector, manual
 and conversion instructions. Beautiful commercial equipment. 9.50
 Other Rixon circuit packs: clocks, modems, power supplies, etc. - see separate list.

Parts removed from equipment
 50K trimpots - \$.50 ; 1N270 \$.03 ; 2N404 \$.05 ; 2 section
 4 position switch (miniature) with knob \$.75 ; 4 section 5 position
 miniature switch with knob \$1.00

Include sufficient postage except where indicated postpaid(rwc 9-20-75)

I received your newsletters the other day and what a surprise, finally a publication written by the readers.

The office I work in does a great deal of data processing but we do not own or lease a computer. Everything we need done is processed by the state at a RJE terminal that has been set up in our area. The students of our district do not at this time have access to a computer, but I am working on the purchase of a Digital Equipment Corporation CLASSIC. For the price and the software available I believe this is the best system around.

I own an ALTAIR 8800 with 8K of memory, an audio cassette interface, and one parallel I/O board. Right now I do not have any software but plan to purchase the ALTAIR 8K BASIC. My computer still has a few bugs that I'm trying to work out with MITS. Everything went together well except the subpanel would not fit into the case when the dress panel was in place, one IC was sent with a pin missing, and the LED'S had the wrong lead cut short.

Please enter my subscription and I look forward to hearing from you.

Sincerely,

ECTOR COUNTY INDEPENDENT SCHOOL DISTRICT

W. M. HOLM, SUPERINTENDENT

BOX 3912

ODESSA, TEXAS 79760

John D. Rabenaldt

John D. Rabenaldt
Assistant Data Processing Coordinator

Enclosure

September 19, 1975

I felt that I should drop you a short line to express the great joy I have always had when your Newsletter arrives. You must definitely continue publication, perhaps not as much or often but still provide a voice for the hobbieist. TCH and BYTE are good but the Micro-8 Newsletter provided the only forum for communication among ourselves which allows discussing of the various suppliers. I would like to suggest a few possible changes which would lighten you load:

- a) assign editors for specific topics or issues, e.g., supplier reliability, Video displays, software availability.
- b) publish only a synopsis of an available program or construction article with the actual item available from the author for a SASE and a coping fee (very small) or available from the User Group under like conditions. While this would be inconvenient for people like myself it might work out in the long run and lighten you load.

Suppliers

I have had the expected good service from both James and IEU recently but have also had very good service from MicroMinimart on a part return which they did not have to process. I hope that my luck is an indication that they have solved their service problems.

Processor Technology 3P+S I/O Board

I constructed this board in Aug with no problems in the parallel ports. However, the UART didn't work which was probably due the reversed IC5. I noticed the contradiction in the instructions but figured the schematic would be right, a wrong guess.

I received their Software package 1 about Sept 2nd. It is excellent and after I get a Video terminal operational I will probably order it in ROM with more RAM. That free piece of software may end up being their biggest money maker.

I would like to get in contact with anyone who has constructed the VDM module.

Sincerely,

George W Rompot
George W Rompot

216 Collier Dr.
Springfield, IL 62704
23 Sep 75

MOD 8

MOD 8 SYSTEM MANUAL

\$9.95

A COMPREHENSIVE VOLUME OF OVER 100 PAGES DESCRIBING THE MOD 8 SYSTEM, PROM PROGRAMMER, AND MOD 8 MONITOR SOFTWARE. MANUAL INCLUDES SOFTWARE LISTING.

MOD 8 MONITOR PROM SETLIMITED OFFER..... \$99.95

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MANUALS WILL BE SENT BOOK RATE PLEASE ALLOW 4 WKS FOR DELIVERY OR ENCLOSE \$2.00 FOR PRIORITY AIR MAIL SERVICE. PROMS WILL BE SENT FIRST CLASS MAIL. FOR PROMPT SERVICE SEND MONEY ORDERS OR BANK DRAFTS.

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BROCKVILLE, ONTARIO
CANADA K6V 5Y6

(613) 342-5041

Can You Cope With The Computer Age?



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* * *

THE NEXT PICASSO — A COMPUTER?

Can a computer create original art? Or is it just a tool? Does all computer art look "mechanical"? Will computer art have an impact on art as a whole in the future? Can you imagine a printed circuit board winning a blue ribbon in an important art exhibition? Find out more in *Creative Computing*, the magazine that brings computer art to you.

All subscribers will receive a \$5.95 computer art book FREE!

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Looking for learning activities that don't need a computer? Things that teach about computer concepts, the role of the computer in society, its use as a tool in math, science or social studies? How about a whimsical centerfold poster for your bulletin board every issue? Comics too? It's all in *Creative Computing*, the down-to-earth computer magazine.

* * *

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DO YOU ENJOY PUZZLES?

Do you like mathematical diversions? Are mind benders your bag? A printer uses 1215 characters to number the pages of a book — how many pages in the book? What's the next number in the sequence 63, 94, 46, 18? What digit is represented by each letter: HOCUS + POCUS = PRESTO. You'll find lots more in *Creative Computing*, the fantastic puzzles and pastimes magazine.

* * *

COULD A COMPUTER TAKE OVER THE WORLD?

Isaac Asimov in a new short story describes what happens when all the computers on earth after a nuclear holocaust link up to support the few remaining human survivors. Want to know the outcome? Then get *Creative Computing*, the magazine that speaks your language.

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1 Yr. \$8 3 Yrs. \$21 Sample \$1

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Return to *Creative Computing* P. O. Box 789-M, Morristown, N. J. 07960.

Dear Sir with regards to your August 3rd. newsletter it is my opinion that a newsletter such as yours is necessary to disseminate the truly staggering amounts of unrelated information (as an example I submit page one of your August newsletter), information which commercial magazines are unlikely to cover, so as to get this information quickly to large numbers of people. Secondly this newsletter enables people with similar interests to contact each other, through your listings when they would otherwise would not have known of each others existence.

In order to facilitate program exchange I suggest that a series of compilers be written to enable (for example:) a program written for an 8080 microcomputer to be used on an 8008, or that a series of programs be written that would take a program from one machine (say 8080) as data and convert it into a program for another machine (say 8008) as output, such a series of programs would make it easier for people owning different types of microcomputers to exchange programs.

In my last letter I expressed certain fears concerning the marketing policies of MITS which I now consider groundless due to the existence of other sources of compatible parts.

I have a copy of a spacewar game program (thanks to Dr. Clayman of Simon Fraser University), for a Hewlett-Packard 2115a whether it can be used on any of the existing microcomputers I don't know, but I'll send anyone who's interested a copy including graphing subroutines. This program was used with a 64x64 point graphics display similar to the one mentioned in your newsletter as published by ECS magazine (BYTE magazine informed me that they will publish an improved version in the October edition of their magazine and that back issues of ECS are available for \$ 2.50 each)

Finally I would like to thank you and all else involved for going to the trouble to produce this publication.

Sincerely Yours


Sidney Trim

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DEAR HAL AND JOHN,

I WAS GOING TO SEND YOU A WRITEUP ON HOW TO GET SURPLUS ICS OFF THE BOARDS WITH A PROPANE TORCH - UNTIL I GOT MY BYTE # 1. ANYWAY, IT WORKS GREAT + I GOT SOME OF THE ALTAJ 5/\$3.95 BOARDS AND HAVEN'T FOUND A BAD CHIP YET OF THOSE I'VE TESTED.

ENCLOSED IS AN AD FROM EE TIMES - THE XEROX QUALITY ISN'T TOO GOOD SO YOU MAY NOT WANT TO PRINT IT IN ITS ENTIRETY; FROM:

PACIFIC SEMICONDUCTOR, INC. (800)421-5910 TOLL-FREE
200 W. FLORENCE AVE. (213)674-9000
INGLEWOOD, CA 90301 (714)521-0990

I SENT THEM OFF AN ORDER AND GOT GOOD SERVICE - AN 8008 FOR \$18.00 (NOW BACK UP TO \$21.50) AND P2102-1'S AT 3.50 (NOW 4.00). THEY ALSO HAVE 2102-2'S AT 2.30 AND 2102'S AT 2.00; C-1702A'S ARE 12.00; THE 8080 IS \$125.00. POSTPAID, \$20.00 MINIMUM.

LET ME ADD MY VOTE TO THOSE FOR CONTINUING THE MICRO-8 NEWSLETTER. YOUR PUBLICATION HAS ABOUT THE MOST TIMELY INFORMATION AVAILABLE TO THE MICROCOMPUTER COMMUNITY AT PRESENT.

I HAVE NEARLY ALL THE PARTS FOR MY MOD-8 AND HAVE STARTED TO DESIGN A FRONT PANEL; I'D LIKE TO GET THE MMM MOD-80 CONVERSION BOARD BUT HAVE HEARD SO MANY NEGATIVE THINGS ABOUT THEM I'M HESITANT TO SEND THEM ANY CASH.

I HAVE HAD IT WITH POLY PAKS - THEIR "TESTED" SEMICONDUCTORS HAVE BEEN ROUGHLY 50 PER CENT BAD IN MY EXPERIENCE; ON MY LAST ORDER THEY SENT 10 50 OHM INSTEAD OF KILOHM TRIMPOTS. THEY NOW HAVE A FANCY FORM TO HANDLE COMPLAINTS SO THEY EVIDENTLY GET A LOT OF THEM. I GOT TWO OF THE "ASCII" GI KEYBOARD ROMS FROM B+F ENTERPRISES; AND ASCII THEY AREN'T.

I BOUGHT THE MARTIN RESEARCH BOOK AND IT'S EXCELLENT. I THINK THE SCELBI PROGRAMMING BOOK AND THE MOTOROLA 6800 APPLICATIONS MANUAL ARE ALSO WELL WORTH INVESTING IN ... I GUESS ENOUGH PEOPLE HAVE PRAISED THESE NOW THAT IT'S GETTING REPETITIOUS. EVERY TIME I READ THROUGH THE MICRO-8 NEWSLETTER I FIND SOMETHING OF INTEREST I MISSED; MAYBE YOU SHOULD EDIT THE CONTENTS AND PUBLISH IT AS THE 'MICRO-8 COOKBOOK'.

SOME FRIENDS AND I ARE THINKING OF STARTING A LOCAL CLUB - MORE DETAILS WHEN WE GET BETTER ORGANIZED.

Harold

Micro-8 Active Participant Roster

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