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

NOVEMBER 10, 1975
VOLUME 1, #12

WE ARE PLEASED TO MAIL YOU NL #12, THE LAST IN V 1. INCLUDED ARE 750 MORE NAMES AND ADDRESSES OF THOSE THAT HAVE CONTACTED US AND HAVE NOT SUBSCRIBED AND A ZIPCODE CROSS REFERENCE FOR THE TWO PRINTED LISTS. THE PARTICIPANT LIST IN NL #11 CAME OUT SO GOOD HALF SIZE THAT I DECIDED TO GET GREEDY AND PRINT EVERYTHING HALF SIZE IN AN EFFORT TO TRY TO GET MOST OF THE MATERIAL WAITING TO BE PRINTED INTO THIS ISSUE. PLEASE READ IT UNDER A GOOD LIGHT AND I HOPE THAT YOU AGREE THAT PACKING MORE MAT-IN WAS WORTH THE SMALL TYPE SIZE. WE STILL HAVE A LOT OF MATERIAL THAT SHOULD BE PRINTED AND IF WE MISSED SOMETHING OF YOURS, MANY APOLOGIES. UNFORTUNATELY, THE MOST IMPORTANT CRITERION FOR WHAT WENT IN WAS WHETHER IT WAS "CAMERA READY". IT DOESN'T COST ANY MORE TO PRINT BLACK THAN WHITE SO I WENT WILD WITH THE RAZOR BLADE TRYING TO SQUEEZE THINGS DOWN.

INCOMING LETTERS (MANY THAT HAVE BEEN PRINTED) HAVE HEAPED PRAISE ON US FOR THE NEWSLETTER. IT IS EASY TO FORGET THAT YOU AND THE REST OF THE PARTICIPANTS ARE THE ONES THAT DESERVE THE PRAISE; WE HAVE JUST PROVIDED THE PRINTING AND DISTRIBUTION PART OF THE EFFORT. LET ME PERSONNALLY THANK EVERY PARTICIPANT THAT HAS SENT IN NEWS ON BEHALF OF THE REST OF THE PARTICIPANTS. YOUR EFFORTS ARE WHAT HAS MADE THE NEWSLETTER A FASCINATING THING TO READ AND REREAD AND TO REREAD.

LET ME ALSO PERSONALLY THANK EVERYONE CONNECTED WITH THIS HOBBY COMPUTER MOVEMENT FOR ONE OF THE MOST EXCITING YEARS OF MY LIFE. EVERY DAY HAS BROUGHT A NEW SURPRISE, A PRICE BREAKTHRU, OR AVAILABILITY OF A NEW COMPONENT OR SYSTEM. IT HAS INDEED BEEN A PLEASURE TO PARTICIPATE IN A PIONEERING EFFORT THAT IS DESTINED TO RESHAPE THE DAILY LIFE OF EVERYONE IN A FEW YEARS. I'M SUFFERING FROM SHOCK RIGHT NOW TRYING TO SORT OUT THE IMPLICATIONS OF RAPIDLY DROPPING PRICES AND THE PROLIFERATION OF MICROPROCESSORS AND HOBBY SYSTEMS--AND IT LOOKS LIKE THE CONFUSION WILL GET WORSE BEFORE IT GETS BETTER.

IT IS TIME NOW FOR THE HOBBYIST TO ASK SOME VERY PRECISE QUESTIONS OF HIMSELF TO TRY TO DETERMINE WHERE HE SHOULD HEAD IN THE FUTURE. SOME OF THESE WOULD SEEM TO BE:

1) EXACTLY WHAT AM I GOING TO DO WITH THIS EXPENSIVE TOY ONCE I GET IT.
2) WHERE IS THE SOFTWARE FOR 1) GOING TO COME FROM.
3) HOW AND WHERE AM I GOING TO GET PERIPHERALS FOR THE UNIT THAT I CAN AFFORD.

YOU MAY BE INTERESTED IN THE FINANCIAL POSITION OF THE NEWSLETTER THE NEWSLETTER HAS BEEN RUN AS A CABRILLO HIGH SCHOOL STUDENT BODY ACTIVITY WITH ALL MONEY GOING INTO AND COMING OUT OF A CABRILLO COMPUTER CENTER STUDENT BODY ACCOUNT. NL'S 1-4 WERE PAID FOR IN MATH DEPT. PAPER AND ABOUT $200 WORTH OF DONATIONS FROM VERY GENEROUS PARTICIPANTS. WE ARE PRESENTLY AT THE BREAK EVEN POINT THRU NL #12 HAVING PURCHASED FOR THE COMPUTER CENTER A DURA MACH 10 SURPLUS AT $275, A MIKE-201 AT $420, 2 DOUGLAS PDP-8 INTERFACE BOARDS AT $200, AND AN ALTAIR 680 AT $310.

PRINTING 2000 11 SHEET-TWO SIDE NEWSLETTERS COLLATED COSTS $295 WITH POSTAGE RUNNING ABOUT $180 PLUS FOREIGN DELIVERY POSTAGE FOR ABOUT $500 PER ISSUE. WE HAVE ABOUT 800 COPIES OF ALL BACK ISSUES ON THE SHELF AND IF THERE IS A DEMAND FOR THESE IN THE FUTURE, A COMFORTABLE SUPPLY AND SOFTWARE BUDGET SHOULD BE AVAILABLE FOR THE COMPUTER CENTER.

I HAVE AVERAGED ABOUT 4 HOURS PER DAY, SEVEN DAYS A WEEK WORKING ON NEWSLETTER ACTIVITIES FOR THE LAST YEAR AND HAVE THOROUGHLY ENJOYED EVERY MINUTE OF IT.

THE NEWSLETTER'S FUTURE?

IT HAS BEEN DIFFICULT TO DECIDE WHAT SHOULD HAPPEN IN THE FUTURE. STRONG RESPONSE FOR CONTINUATION FOR AT LEAST A FEW MORE ISSUES HAS BEEN RECEIVED WITH ONLY A FEW NEGATIVE LETTERS. I AM WORRIED THAT THE RAPID PROLIFERATION OF LOCAL CLUBS IS GOING TO QUICKLY ELIMINATE THE NEED FOR THE TYPE OF NL WE HAVE PROVIDED BY PUTTING HOBBYISTS INTO DAY TO DAY CONTACT WITH EACH OTHER AND WITH THE INFORMATION THAT WOULD ORDINARILY GO INTO THE M-8 NL FINDING ITS WAY INTO THE LOCAL GROUP NEWSLETTERS INSTEAD.

THIS IS A NATURAL AND DESIRABLE EVOLUTION BUT WE DON'T WANT TO FIND OURSELVES IN THE POSITION OF HAVING TAKEN YOUR MONEY AND PROMISED MORE MATERIAL AND THEN FIND IT DIFFICULT TO DELIVER. IF WE WERE TO GO FOR SIX MORE ISSUES, IT WOULD SEEM THAT THE NEWSLETTER COULD PROVIDE THE FOLLOWING SERVICES:

1) TRY TO SUMMARIZE THE HOT NEWS, TIPS AND RUMORS.
2) CONTINUE TO PROVIDE READER RESPONSE ON SUPPLIERS OF COMPONENTS AND SYSTEMS AS TO THEIR RELIABILITY AND DELIVERY.
3) TO SUMMARIZE MATERIAL CONTAINED IN THE VAST NUMBER OF LOCAL GROUP NEWSLETTERS AND PROVIDE INFORMATION ON HOW TO OBTAIN COPIES WHEN YOU THINK THE MATERIAL WOULD BE VALUABLE.
4) CONTINUE TO TRY TO MAKE IT POSSIBLE FOR PRTICIPANTS TO CONTACT EACH OTHER AND FORM LOCAL GROUPS
5) TRY TO DIRECT PARTICIPANTS TO SOME OF THE GROUP PURCHASE EFFORTS BEING ORGANIZED BY THE LARGER CLUBS.
6) WHAT DO YOU THINK THE NEWSLETTER SHOULD ACCOMPLISH?

PLAN FOR THE FUTURE

WE ARE WILLING (AND HAVE RECEIVED PERMISSION FROM OUR HIGH SCHOOL PRINCIPAL) TO CONTINUE FOR SIX MORE ISSUES IN MUCH THE SAME MANNER AS BEFORE PROVIDING THERE IS A NEED. AT LEAST 350 RENEWALS AT $6.00 FOR SIX ISSUES WOULD BE NECESSARY TO GUARANTEE A BREAK EVEN ONGOING OPERATION. IF YOU WISH TO RECEIVE SIX MORE ISSUES, SEND:

1) A CHECK FOR $6.00 MADE OUT TO THE CABRILLO COMPUTER CENTER
2) A LEGAL SIZE (9"X4") SELF-ADDRESSED ENVELOPE WITH A 10 CENT STAMP.

IF AN ADEQUATE NUMBER OF RESUBSCRIPTIONS ARE RECEIVED, WE'LL SEND OUT A HOT NEWS FLYER IN THE SASE IN DECEMBER AND VOL 2, NL #1 ABOUT THE MIDDLE OF JANUARY.

IF RESPONSE IS NOT ADEQUATE TO JUSTIFY CONTINUING YOUR CHECK AND A HOT NEWS FLYER WILL BE MAILED TO YOU IN THE SASE.

NEWSLETTER SUBSCRIPTION FORM

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. (MAKE OUT CHECKS TO THE CABRILLO COMPUTER CENTER)

NAME --

ADDRESS --

ZIP ----------------------------

TELEPHONE # --

(MAY BE PUBLISHED - LEAVE BLANK IF YOUR PREFER)

I HAVE OR AM INTERESTED IN THE FOLLOWING COMPUTERS AND PERIPHERALS:

Mail Order Firms Told to Deliver on Time, or Refund

WASHINGTON (AP)—Mail-order firms must either deliver on time or allow consumers to cancel their orders and receive a prompt refund, the Federal Trade Commission said in regulations issued Friday.

The rules, considered by the FTC for four years, cover almost the full range of goods sold by mail, including books, records, magazines, furniture, Christmas decorations and clothing. The major exceptions are seeds, plants and photo developing and processing.

For magazines, only the initial issue of a subscription is covered.

The regulations, which take effect Feb.2, 1976, place the burden for late delivery or no delivery on the multi-billion-dollar direct mail industry.

The White House consumer affairs adviser, Virginia Knauer, had estimated that 6,000 large and small mail-order firms in the United States would be affected by the regulations. They do an estimated $40 billion in business annually.

Under the regulations, a mail-order company must notify a customer if an order will be delayed beyond an advertised delivery date and provide an adequate, cost-free means, such as a prepaid postcard, to allow the consumer either to agree to a delay in delivery or to cancel the order.

The regulations provide that if the order is canceled a refund must be sent within seven days.

Firms that advertise no specific delivery date must get their product to the buyer within 30 days of receiving the order.

In testimony before the FTC, Mrs. Knauer had said that next to auto sales and repairs, mail-order deliveries were the biggest consumer headache for Americans.

Asked why the rules were not issued before the coming Christmas mail order rush, Joan Z. Bernstein, acting director of the FTC Bureau of Consumer Protection, said it was necessary to give companies time to adjust to the new requirements.

Mrs. Bernstein said violators of the regulations could be subject to fines of $10,000 for each day a violation is repeated.

The regulations provide that consumers who pay for mail-order products by credit card shall have refunds adjusted on their credit card records within one normal billing period.

TED SALLUME, 945 VIA FARGO, SANTA MARIA, CA 93454 (805)937-4541 SUPPLIED US WITH THIS CLIPPING FROM THE L. A. TIMES. THIS SHOULD SIMPLIFY DEALING WITH MAIL ORDER SUPPLIERS. IT MAY ALSO CUT DOWN ON THE ADS OFFERING HARD TO OBTAIN STUFF BUT ADS THAT FEATURE ITEMS THAT DON'T REALLY EXIST WE CAN DO WITHOUT.

TED IS CAREFULLY ASSEMBLING HIS SPHERE SYSTEM AND SHOULD HAVE IT FINISHED IN ANOTHER COUPLE OF WEEKS. CONTACT HIM IF YOU HAVE BEEN THINKING ABOUT PURCHASING ONE.

1) MARTIN RESEARCH IS NOW DELIVERING 4K MEMORY BOARDS AND REPORTS THAT THE MIKE 201 MANUALS WILL BE SENT OUT ABOUT NOVEMBER 25 AND THAT 8080 SYSTEMS ARE ABOUT A MONTH AWAY.

2) MANY OF US ARE GUILTY OF COMPLAINING ABOUT A COMPANY'S POOR PERFORMANCE WITHOUT HAVING WRITTEN A LETTER TO THEM COMPLAINING. THINGS GET LOST ACCIDENTALLY AND MANY TIMES A QUICK NOTE WILL ALLOW CORRECTION. WE MAY BE CHEATING SOME PEOPLE ON THEIR NEWSLETTER SUBSCRIPTION BUT IF THEY DON(T WRITE, WE'LL NEVER KNOW ABOUT IT AND WILL BE UNABLE TO CORRECT IT. THE SAME IS TRUE FOR NEARLY EVERY COMPANY. SCREAM IF YOU THINK YOU ARE HURT AND YOU MAY BE SURPRISED AT HOW MUCH ATTENTION YOU'LL GET.

3) JOE CIMMINO LET US DOWN ON THE RESULTS OF THE SURVEY HE WAS SUPPOSE TO COMPILE. NOTHING HAS BEEN RECEIVED FROM HIM. TOO BAD, IT MIGHT HAVE BEEN INTERESTING.

4) CABRILLO COMPUTER CENTER EQUIPMENT.

AFTER TWO YEARS OF PROPOSAL WRITING WE ARE NOW ANXIOUSLY AWAITING DELIVERY OF OUR 8K MEMORY ADDITIONS FOR OUR PDP-8/E AND OUR THREE DIGITAL EQUIP. CORP. CLASSICS. THESE ARE 16K PDP-8/A'S WITH DUAL FLOPPY DISKS, 60 CPS VIDEO TERMINALS, AND 45 LPM ELECTROLYTIC PRINTERS. WITH 4 PDP-8'S AN ALTAIR-680, AND A MIKE-2 RUNNING SOON AND AN 8080 SYSTEM, 2 8008 SYSTEMS AND AN 8K VARIAN 620/L TO BE FINISHED WHEN TIME PERMITS, WE MAY END UP WITH THE BEST EQUIPPED HIGH SCHOOL COMPUTER CENTER IN THE COUNTRY.

5) M&R ELECTRONIC'S ASTRAL 2000

MARTY SPERGLE OF M&R ELECTRONICS, PO BOX 1011, SUNNYVALE, CA 94080 HAS DEVELOPED AND HAS DEMONSTRATED TO THE BAY AREA HOMEBREW COMPUTER CLUB A NEW M6800 BASED SYSTEM CALLED THE ASTRAL 2000. IT FEATURES 8K OF MEMORY, [illegible] AND COMES READY TO RUN PLUS BASIC. IT COMES WITH A [illegible] AMP POWER SUPPLY, [illegible] REAL TIME CLOCK, [illegible] AND HEX FRONT PANEL DISPLAY AND FRONT PANEL SWITCHES THAT CAN BE USED AS I/O WHILE RUNNING. PRICE WILL BE UNDER $1000 AND SHOULD BE AVAILABLE ABOUT DEC. 1975. WRITE TO MARTY FOR DETAILS.

HIS PENNYWHISTLE 103 MODEM KIT WILL APPEAR IN A NATIONAL MAGAZINE SOON AND SHOULD ALLOW YOUR COMPUTER TO TALK TO ANOTHER OVER THE TELEPHONE LINE FOR UNDER $100. MARTY ALSO SAYS HE HAS SOME HARE TO FIND KRAFT JOYSTICKS COMPLETELY ASSEMBLED THAT SHOULD BE GREAT FOR GRAPHICS TERMINALS, 91L02A (500NS) AT 8/$22, AND M6800 CPU'S FOR &52.50.

6. THE L. A. HOBBY COMPUTER GROUP (SCCS) IS WORKING ON ALL KINDS OF GROUP PURCHASES SUCH AS 8080'S ($30), JOHN BURGOON'S MEMORY BOARDS, 2102'S AND 1702A'S, ETC. AND MOST IMPORTANT, THE LSI-11 GROUP PURCHASE. LAST I HEARD, THEY TRIED TO COLLECT DEPOSITS AND HAD RECEIVED ABOUT 20 ORDERS. THEY ARE PROBABLY GETTING CLOSE TO THE 50 NECESSARY TO MAKE THE PURCHASE. IF YOU WANT AND NEED A "SERIOUS" COMPUTER, THIS IS THE WAY TO GO. THE GROUP IS BONDED SO YOU CAN SEND THEM CHECKS WITH MINIMAL WORRY AND THEY WILL TAKE BA & MASTERCHARGE IF YOU PAY THE 3% FEE. IF YOU ARE INTERESTED SEND A LARGE SASE WITH 30 CENTS WORTH OF STAMPS FOR A COMPLETE EXPLANATION OF THE LSI-11 GROUP PURCHASE TO: HAL LASHLEE, LSI GROUP PURCHASE, SCCS, PO BOX 987, SOUTH PASADENA, CA 91030 (213) 682-3108.

7) ELECTRONIC PROJECTS NEWSLETTER

IF YOU TEACH HIGH SCHOOL ELECTRONICS OR KNOW SOMEONE THAT DOES, LOOK INTO THE NEWSLETTER PUBLISHED BY ROBERT DELP ELECTRONICS, BOX 1026, FREMONT, CA 94538. IT FEATURES LOW COST CONSTRUCTION PROJECTS IN THE $5 TO $10 RANGE WITH A COMPLETE PACKET OF CONSTRUCTION INFORMATION SUPPLIED EACH MONTH FOR $10 PER YEAR.

XXX-11 NEWSLETTER

Dick Corner (514 So. 9th St., Moorhead, MN 56560) and Jim McCord (330 Vereda Legenda, Goleta, CA 93017) are going to put out a newsletter oriented toward hobbyists who have machines that use the PDP-11 instruction set. It will follow the general format of the MICRO-8 NEWSLETTER, and its primary purpose will be to promulgate news of interest to PDP-11 hobby users and to serve as a way for them to communicate with each other. It will also publish interesting and workable software and hardware ideas submitted by readers. Publication will be irregular, depending on how much good material is sent in, but we will try to get issues out every couple of months or so.

Any one interested in this newsletter should send an SASE to Dick Corner at the above address. Club memberships are encouraged as is unlimited copying -- newsletter are getting expensive. Don't send any money yet -- we won't know how much to charge until we get some idea of how large a circulation we can expect. If interest seems small we will either drop it or try to "attach" ourselves to one of the existing national newsletters. We will put out our first "issue" sometime in late October, using the SASE's. This will define our aims in more detail and will set forth some general standards for submitting material and programs for publication. Please pass this information on to anyone you know who might be interested, including any other LSI-11 buyer groups. We will send a copy to DEC in Maynard and will solicit their help.

We look forward to an interesting and exciting newsletter oriented toward this powerful minicomputer.

From JOHN CRAIG.....in San Francisco

The computer industry in this country has three focal points: Massachusetts, Southern California, and Northern California. I just finished spending 2½ years down in Orange County and it was definitely an interesting and gratifying 2½ years. But, after just six weeks in the San Francisco area I'm really amazed at the many enthusiastic people I've met and the exciting things going on here. (Someday I'll have to get to Massachusetts and see how it compares.)

Several weeks ago I attended a computer conference at the Lawrence Hall of Science, UC Berkeley. DEC, Altair, Data General, Wang, and others had displays set up for kids to play with (big & little kids). I had the opportunity to meet Dave Bunnell, editor of Altair's newsletter, COMPUTER BITS. Nice fella. In spite of all the neat displays set up the most impressive item there was a talking calculator for the blind! This unit was a sheer delight to play with, especially when you consider how it would open up a whole new world of mathematics for a blind person. Each time an entry is made the unit responds with an appropriate audio output. For example, to add 3 and 4 you press (and hear) "three plus four equals." To obtain the result a special "speak" key is depressed and you then hear, "seven point oh oh." The unit is only 7"X4½"X1½" and features memory, square root, percent, and constant functions. It is available from TELESENSORY SYSTEMS INC., 1889 Page Mill Rd., Palo Alto, Calif. 94304 for $395 (which, considering the technology that went into the development, seems quite reasonable). This price, incidentally, is available only to individual blind persons. If you know someone who is blind you might want to let them in on this. (Telesensory Systems has phamphlets in regular print and braile.)

I've also had the opportunity to spend some time at the PEOPLE'S COMPUTER COMPANY. And, they are definitely an interesting group. Bob Albrect is (among other things) showing a lot of interest in techniques for displaying brain waves on the 'ol home television set. Let your imagination loose and you can come up with several interesting applications for that.

I also attended a one day session at National Semiconductor's Microprocessor Training Center on the IMP-16 P (Prototype/development) system and PACE. National believes (and understandably so) that the power of their 16-bit microprocessors will eventually dominate the market, and they're not too worried about Intel. They also have plans to make a dent in the 8-bit market with SCAMP, which will sell for $15 in onesies and twosies.

Oops, I almost forgot a couple of items. At that Computer Conference I did encounter another very interesting item: The Cyclops Digital Camera. Applications include security systems, image recognition systems, and automated control systems. The manufacturer is also offering a controller for interfacing it to an Altair. (Camera; kit-$180, assembled-$235/Controller; kit-$260, assembled-$340) If you're interested contact the distributor: Repco, P.O. Box 4127, Mountain View, Cal. 94040 (415) 965-8581.

Bob Mullen of the People's Computer Company has developed an extender board for the Altair (and just wait til you try to fix a computer without one). He's also come up with a Relay/opto Isolator board for the Altair.

See ya back in Lompoc next time.

Richard A. Peterson, 9004 184th Ave. East, Sumner, Washington 98390, would like to see a group of hobbyist get together and build a kit based around the 8080, 6800, or IMP-16....and offer it on a non-commercial basis for cost only.

Lt. Raymond L. Buvel, PSC Box 2093, WPAFB, Ohio 45433, is planning to build his own microcomputer and peripherals such as plotter, printer and CRT (TVT ?).

Greg Lindberg, 1489 Brodiea Avenue, Ventura, California 93001, is planning to order an Altair 8800.

Mike Talbutt, Box 165, Wallonia, Indiana 47281, is currently building a TVT and plans to build a microprocessor around the Fairchild F-8 chip, and would like to get in touch with anyone else going in the same direction.

Martin J. Boyle, 1030 Milton Blvd., Rahway, New Jersey 07065, is specifically interested in a TVT.

Dale Stewart, 412 Young Place, Lakeland, Florida 33803, plans to construct an Altair within the next year. College expenses holding him back right now.

Peter Rowley, 178 Braebrook Ave., Pointe Claire, Quebec, Canada H9R 1T9, is interested in building an Altair.

Richard W. Schmidt, P.O. Box 66394, Houston, Texas 77006, is an Itty Bitty Machine assembler programmer and plans to build his own microcomputer in the future.

George Smulha, 921 W. Patterson St., Tampa, Florida 33604 is contemplating an Altair.

Dean Dillabaugh, 913 Hamlet Road, Ottawa, Ontario Canada K1G-1R3, just finished 2 years of high school courses in computer programming and is now building an 8008 based computer so that he can expand into assembly programming.

W.F. Conn, 2440-24 Ave., N.W., Calgary, Alberta T2M 2A2

Lloyd G. Oram, 568 Wallinger Ave., Kimberley, British Columbia V1A 1Z9, is a ham (VE7HH) with aspirations toward building a hobby computer as a learning tool.

Robinson C.L. Hodgkins, 915 Berkshire Rd., N.E., Atlanta, Georgia 30324, is a student at Emory University who is pretty heavy into programming. He would like to join a club in his area and is thinking about an Altair (or something else).

R.I. Johnson, Chairman, Department of Computer Science, University of North Dakota, P.O. Box 8181 University Station, Grand Forks, North Dakota 58202, says the university has recently established a computer lab and they're building a minicomputer (?).

Dr. Franz J. Frederick, Assoc. Professor, 112 Education Building, Purdue University, West Lafayette, Indiana 47907, has great plans for their newly acquired ALTAIR 8800: 1.) Control computer for experimental learning research (reading & human memory), 2.) intelligent low-cost graphics display, 3.) a stand-alone CAI system.

Roy Liggins, Department of Medical Engineering & Biophysics, Toronto General Hospital, 101 College St., Toronto, Ontario M5G 1L7

O.K., you lawyers...here's a good one: Dennis E. Faulk, Attorney at Law, 814 Main St., Canon City, Colorado 81212 (Ph: 303-275-2904), is interested in getting in touch with anyone working with an 8008 or 8080 based processor for generation of the following software: LAW OFFICE APPLICATIONS including typing, editing, word processing & storage; litigation control; indexing & retrieval of briefs, research, & internal documents and forms; cross-referencing Court Rules to statutes to cases; tickler (?) systems; remote "smart" terminal; library storage & retrieval. Whew!!

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You'll notice that the above entry took a total of seven lines! I thoroughly enjoyed all seven of them. I'm hoping (and so is Dennis Faulk) that there is another lawyer out there interested in developing some of that software. And, you can bet it will be to their mutual advantage to get together on the project. That, folks, is what this newsletter is all about. It truly distresses me to have nothing but a name and address to put down. If that's all we've received from you we would sure appreciate a note describing your aspirations and plans. (Don't get me wrong... we're not hurting for mail.... we just like to share these things with the rest of the world.) JTC

* *

D.J. Bannon, 1712 Santee River, Placentia, Calif. 92670, is going to get together with a friend and build and develope software for the Altair. They both have extensive hardware and software experience.

Walter H. Burkhardt, 304 Alumni Hall, Pittsburgh, Pennsylvania 15260, is another new owner of an Altair 8800. (They're going to take over the world, you know.)

Alex Brown, 143 14th #9, Seal Beach, California 90740 has something in common with Mr. Burkhardt. (Yep, an Altair.)

Frederick Staples, 6523 Avenue North, Brooklyn, N.Y. 11234, is a Communications Technician with New York Telephone and has had a long-standing interest in computers. (Believe me, Fred, you'll enjoy chasing the ones and zeros a lot more than the squigly lines -AF & RF)

Jim Pendergrass, 814 E. Ironwood Drive, Phoenix, Arizona 85020, should have received his Altair by now.

William Haddock,Jr., 1018 Briar Ridge, Houston, Texas 77027, is among the users of the 8080 chip.

David A. Busse, (whoops, no address) is a programmer working toward his Masters & has plans for building a home microprocessor.

Charles M. Phelan, 1817 N. Edgewood Terrace, Ft. Worth, Texas 76103, (Ph: 817- 534-2071) is interested in our "Altair 8800 group." He's building a TV terminal (his own design) and trying to get a very used Flexowriter working. He'll interface both with his Altair eventually.

Darrell Long, 152 Neal Drive, Richmond Hill, Ontario, Canada

Kim De Vaughn, PO Box 6706, Reno, NV 89503 is putting together a system based on the IMP-16. He feels that this chip set (with the availability of optional CROM's) is the most powerful system currently available.

Wayne L. Stork, 1035 Rota Drive, APO San Francsico 96334 has finished construction of an ALTAIR 8800 and CT 256. He now needs interface circuits and more memory. He's in the Air Force and stationed on Guam and there isn't much happening in microprocessors there.

Richard Whipple, 305 Clemson Drive, Tyler, TX 75701 and John Arnold have a floating-point package (using BCD arithmetic) and an interpreter up and running and are wondering if anyone is interested? Their cassette system is compatible with Suding's.

David W. Johnston, PO Box 3781, Washington, DC 20007 reports that MINI-Software, Inc., Box 7438, Alexandria, VA 22307 has a two-pass FORTRAN compiler which may be used in any 16K 8080 system. Floating point add time is about 2.5 ms. Write them for a price.

Fred Litton, 3618-30, Lubbock TX 79410 and John Spencer have completed an MIL Mod-8 with 2K of 1702 PROM. They plan to use it in some plan automation.

Martin J. Boyle, 1030 Milton Blvd., Rahway, NJ 07065 and his son have a working TVT-1 and they are adding a UART and scrolling and trying to decide what kind of microprocessor system to go.

Tom Schweitzer, 101 kathleen Dr. W, Syosset, NY 11791 is interested in construction of a word processing computer that would display printed text from a keyboard on a tv display. Storage of text could be done with a cassette recorder and some form of printing terminal would be needed for hard copy. He works for General Instrument as a semiconductor development engineer.

David Silacci, 1405 - 48th Avenue N.3, San Francisco, CA 94122 says his Mark-8 is up and running. David suspected that his chip was bad and contacted Paul Farr who checked out his 8008 and wet his appetite by demonstrating his equipment.

Charles Goetowski, Telemed Corp., 2345 Pembroke Ave., Hoffman Estates, IL 60172 has an Altair-8800 with 13K, SWTP CT1024, Altair cassette interface and a SWTP parallel interface for the TV. He says that if anyone needs medical computing help, they should let him know.

Tate Yoshida, 2951 S. King Drive, Chicago, IL 60616 has ordered a Martin Research Mike#2 and has also ordered the MIL Mod-8 boards and will probably put his major effort into a system based around them.

Dan Pattyn, 1212 South 6th, Bozeman, MT 59715 reports: "Glad to hear of your school boards approval of the new computer systems. The state of affairs here is most sad. A teachers strike is pending and the press leaked the news that our timeshare terminal had been used by the teacher's union to calculate salary schedules. The Computer Resource Center and its director are now embroiled in controversy. I fear the student's computing needs will be second to bruised egos. All administrative machinery has ground to a halt. It will be 6 to 8 months at a minimum before we can start looking for a new system even if the hurt egos repair themselves. Please advise others of the potential danger the word "computer" is on the 5:30 news.

Alan La Pointe, 5880 Park Avenue, Richmond, CA 94805 (415) 234-2865 says that his company is considering marketing used TTY's and similar equipment to the computer hobbyist market and will supply further details in the near future.

Dear Hal:

I would like to help form a MIKE User's Group. I have talked to Don Martin and Bob Russell of Martin Research about this and they were most cooperative. Mr. Martin considers all MIKE software to be in the public domain and plans no restriction on its distribution. (Compare that to MIT's policy!) They will offer some software on preprogrammed 1702A PROMs. They will encourage group business by offering discounts and priority service.

I have limited time and no financial resources to underwrite a MIKE User's Group. Therefore, I propose the following:

1. I will write a monthly column for distribution to the M-8 Newsletter, the San Diego club Newsletter, and any other club that wants it.

2. I will send the enclosed information packet (70+ pages) to anyone for five dollars (cost of reproduction and mailing). Any contributions you care to make will also be included at no additional charge.

I welcome your comments, suggestions, criticism, or additions. If the above seems reasonable to you, please feel free to publicize it in your next Newsletter.

I have enclosed a SASE. Could you please send me the names, addresses and/or phone numbers of anyone else you know of who is interested in forming a MIKE User's Group, as well as any MIKE owners that I could contact. I would also appreciate your comments and any information you have regarding the MIKE. Please feel free to use my name, address, and/or comments in any manner you feel will promote the formation of a MIKE User's Group.

Sincerely yours,

Jim Farschon

James W. Farschon

Mr. & Mrs. James W. Farschon
3949 Mt. Everest Blvd.
San Diego, Calif. 92111

JIM'S INFORMATION PACKET CONTAINS A WEALTH OF INFO ON HOW TO INTERFACE TO THE MIKE-2. IT INCLUDES SOME MARTIN REPRINTS, SOME INFO OF HIS OWN AND THAT HE HAS COLLECTED ON INTERFACES AND A LOT OF SOFTWARE LISTINGS. JOHN FORD AND I WILL ADD OUR INTERFACE INFO FOR THE SUDING TVT & CASSETTE, KEYBORAD, TCH CASSETTE, POP ELECTRONICS HITS CASSETTE AND CREED INTERFACE. RICHARD LERSETH CAN SUPPLY A FIFO KEYBOARD INTERFACE AND A LOT OF OTHER THINGS (HE HAS A HUGE SYSTEM RUNNING). THE MIKE-2 HAS TO BE THE EASIEST COMPUTER IN THE WORLD TO INTERFACE TO. THE TCH INTERFACE REQUIRED "NO" IC'S, ONLY A HEADER PLUG AND A DEVICE DECODE ALREADY THERE. FROM PRELIMINARY TESTS IT WORKS INCREDIBLY WELL.

Hal Singer: 19 October 1975

I've been kicking myself ever since I first got some copies of your NL. Last December I started building a Mark-8 and I got it running last July. I didn't like the way I had configuered it so I tore it apart. I'm just getting it together with a TVT and cassette recorder. The problems that I've had and the things that I've dreamed about you've already solved and built. Life would of be so much easier if I had gotten into this NL earlier.

Don't stop this NL just because BYTE is on the scene. I feel I have gained more practicle knowledge from your NL than I have from BYTE.

Perhaps I can make a contribution to your NL. In the past few years a new computer technique has been developed which is called a computer conference. In the old days a conference was announced months in advance, arrangements made, a lot of money spent, and interested poeple were brought together in one location to exchange and develope new ideas. Using computers a conference can be held between interested poeple irregardless of their location.

A computer conference consists of a computer with the conference program and interested poeple with computer terminals. Poeple communicate their ideas to the computer whcich then records their comments and transfers them to other members of the conference. For example; I could enter the first paragraph of this letter into a conference for computer hobbiest and instantly it would be available to all other poeple in the conference.

The computer conference alters the usual constraints of time and space so that it is possible for more poeple to enter into a conversation. For instance, I can enter comments to the converstion when all other members of the conference a sleeping yet the computer would provide my comments to the other members when they check in in the morning. You do not need to be physically close to carry on a converstion. On member of the conference could be in New York, another in California, and another across the hall. It makes no difference to the computer where the terminals are.

As I see it the computer conference would be an ideal mode of communication for computer freaks. Most poeple interested in this newsletter for instance, have their own computer terminal or are building one. Things happen so quickly in minicomputers that a publication can not keep up. A computer memory on the other hand can be updated almost instantly and then be ready for print out.

I guess that what I am coming to is a proposal that your NL change to a computer conference. All information submitted to you in the past is put into a computer then any member of your conference can enter new programs, projects or grips to your computer memory, and any other member could have access to this data. Aperson could keep up on computer developements simply by asking for a print out of all new discussion since such and such a date. If he was only interested in the Nark-8 he could ask for only discussion on that.

I think that a computer conference has enormous advantages over a newletter. Besides its speed a computer conference is very flexible and it can reach and interact with lagge numbers of poeple. There are things to be worked out but the computer conference will be an advance in the state of the minicomputer art in intself, and the existence of a computer conference will promote further advances in the state of the art.

Sincerely yours;
David Christianson

305 Jackson Avenue
Crookston
Minnesota 56716

Dear Hal & John,

Though we have not decided upon which computer to buy yet, we are quite serious about getting one soon. We're also rather green in this new hobby and it would probably be a riot to someone knowledgeable if they could hear us stumbling over the many terms used in this field. However, we're beginning to catch on. We've both had some limited programming experience; I with a CDC 7600 using FORTRAN; she with an IBM 370 using FORTRAN. But, it appears that much of the knowledge gained in the programming courses went in one ear ...

The AITAIR ad really caught us for awhile, that is until the brochure arrived showing the real costs involved. Dreams were shattered.

Then your newsletter arrived. Thank you very much. (Don't even consider discontinuing it!) Our hopes are alive and well again. We have some kit-building experience (Heathkit, Dynaco) so once we understand what interfacing is required, we'll be eager to begin.

We'd like to assemble a system that will allow us to use BASIC, and we'd like to use a keyboard-TV combination for I/O. A question about using a Cassette drive, will a good quality home use Hi Fidelity deck work, or must the required drive unit run at a higher speed? Also, for a system using BASIC, about how much memory is required?

We'd like to extend this hobby to the entire family, (2 children ages 7 and 9) so many of the programs we'll write will be of interest to the kids as well.

As must be painfully obvious, we have a lot to learn. We'd really appreciate any help in getting us started. What is the 8008 and the 8080? Where can we get info on it and who sells it? Some help please.

Sept 21, 1975

Chris Hovey
Det 11, ESD
APO San Fran,
Calif 96369

Sincerely,

Chris & Sandy

Gentlemen:

I just wanted you to know---I'm either a very lucky person or a super sucker. You see, I've just sent my check (don't have mastercharge) for $750.00 to Sphere Corp. for their computer with cassette interface and modem. I called Mike Wise, President of Sphere, and he seemed to have the right answers. The price is right---CPU, 5K Memory, BASIC, Keyboard, TVT (Less TV Monitor), Powersupply, and for 'Mass Storeage', a cassette modem all for (only?) $750.00. They have warranted either 60 day delivery or 5% refund which isn't half bad. I'll let you know how it all works out. At least the BBB has had no complaints, so, here's hoping I'm lucky and not a super sucker. I have already built the TVT-2 and keyboard and they both work fine. It looks like they won't be needed if the Sphere works as advertised though. I'd sell them if someone wants them. I would like to turn on some of your readers to an idea for TV monitor---Cheap! Try your local medical x-ray sales and service organization. Many of them have used, but serviceable or repairable, Video Only Monitors that while not useable to watch football, etc., are great for TV displays from a TVT. Prices range from $0.00 up, depending upon condition and how gifted the gabber. Try your x-ray department in your local hospitals too. Keep up the good work with the NL. Don't be afraid to start Volume 2 next year. Your NL is the single best publication for us Micro-8er's.

Sincerely yours,

Richard C. Creighton
1053 Princewood Dr.
Orlando, Fla. 32810

Richard C. Creighton

NEW ADDITIONS TO THE ROSTER

Since we're publishing a complete roster in this issue (name, address, phone number, etc.) only the names and comments from the newcomers will be listed below.

.....

Edward Zibulka, WBAWK, has an extensive background in commercial and ham radio and is planning to use his Mark-8 (not started yet) and the Suding TVT for ham applications. He would like to get in touch with someone in Cincinnati who has built a Mark-8.

Sidney Gogel will have his Mark-8 running soon.

Dale Morris recently purchased an Altair 8800 and got it up and running in 1 week. He discovered that the subroutine stack wouldn't hold data and therefore returned the CPU board to MITS for repair. He's very interested in 8080/Altair/peripherals information.

Charles Floto is another Altair 8800 owner and is planning to use it in word processing and typesetting. He suggests that when one hobbyist writes to another he should consider a SASE if he expects a reply.

Steve Hopkins is an Electronic Engineering student at the University of Illinois and eventually plans to build a microcomputer for use in electronic music synthesis and automatic airplane control (autopilot?).

Lewis Hamburger says it is difficult to imagine the wide interest indicated by the NL's; the subject being abstruse and difficult and also expensive.

Charles L. Sheffield is going to build an 8008 based processor. He has a "Micro-Switch" CPS RW-10357 keyboard (and needs info on it) and a TVT-1.

James E. Staber is currently assembling the Altair 8800.

David Zernoske is another 8800 owner (and if the little note was interpreted correctly he has interfaced it with a calculator).

Lawrence J. Richter has an Altair 8800 with no memory or I/O. He is building a TVT and is on the prowl for hardware and software (BASIC?? Yeah!)

Daniel J. Macero is a Professor of Chemistry at Syracuse University and recently purchased an Altair 8800. (This is beginning to sound like a broken record.... whatever became of the Mark-8??)

Arthur Brown is heavy on software development but not to much into the hardware construction area. He proposes development of an ALGOL bootstrap compiler for the 8080. If any of the Washington D.C. area members are interested he would like to perhaps work out a swap for experimental work in return for some construction (or construction help).

Peter Asch is another 8800 owner and is in need of an Assembler, memory boards, and some "prototype" PC boards that fit the 100 pin bus edge connector. (Ted Lincoln solved that problem, Pete, by scrounging up the right connectors on other boards....cutting them off...then mounting them to vector board. Works fine if you don't mind going the wire-wrap route.)

Edwin Whatley is building MP Publishing's 8008 design with a TVT console, cassette, PROM bootstrap loader, and a graphics unit. He is looking at the DATAPOINT assembler for conversion along with several other pieces of software.

Ronald Herff was commenting that the earlier newsletters didn't have much (if any) information on the 8080 and Altair 8800 (actually, he was complaining!). Well, don't worry, Ron, it looks like you won't be lacking in the future.

Richard Culbertson just completed his Altair 8800 (w/256 words) and has acquired a Remex paper tape reader (going first class, huh?). He's looking for BASIC, more memory, and some 8080 programs.

Arthur Ferguson is a mechanical engineer in a foundry and has as a hobby (and 2nd career) the servicing of 2-way radios. He has a 2nd class FCC license and is looking forward to getting into the microcomputer thing.

Jan Wilson has plans for ordering an Altair 8800 at some future date and is interested in information systems and general computer applications. (Some of the previous NL's should answer your request for a good basic introduction to micro-computers, Jan. Check out the Schelbi manual.)

Vincent Buscemi is an electronics teacher trying to keep up with the state-of-the-art by getting interested in microcomputers.

Allan W. Walker has been an electronic hobbyist for 15 years and has an M.S. in Computer Science. He has an Interdata minicomputer for his home computer (with a nice set of peripherals). He has some surplus I/O gear (paper tape readers, punches, keypunches, verifiers, etc.) which work--and at very attractive prices. Contact him for details.

Roland Lupient "was" an Altair 8800 owner. After putting it together he had to send it back to MITS (on May 22) because it didn't work, and he hasn't seen it yet. And, he hasn't seen the Comter 256 terminal which was ordered on February 25.

Steve Hopkins eventually plans to build an 8080-based computer.

Marshall Edgell is shopping around for an 8080 based kit (didn't like the MITS prices) and plans to use it for development of electronic games.

Randall Walker is working on an Altair 8800 (has the four basic PC boards). He will shortly separate from the Navy and start attending S.F. State U. and major in Business Adm (Data Processing Mgmt). He will probably join the San Francisco hobbyist group.

John Eckert is a Physicist/Manager with the Enviromental Protection Agency working with Remote Monitoring Systems. His interest lies with the National Semiconductor PACE system rather than the 8008/8080.

Andrew Woodman developed an 8080-based system from scratch with a DMA diagnostic controller. He has some interesting peripherals for sale (at very good prices); these include a Flexowriter, ½ in. 2-track servo-controlled tape transports, two 2-track cassette, and some 2548's and 1101's. Write for details.

Oh, and here's a late one... (about two months late). Don Kelton recently came out to California from New York to attend a software course on the Varian V-70 Systems. As is often the case these days he wound up spending as much time discussing the Mark-8 as the V-70. Don has a Varian 620-L as a home computer and also has (get this!) a Bendix G-15 computer (circa late '50s) in storage in California, which he would like to sell for $2500. The computer is fully operational, has extensive software, manuals, flexowriter and other peripherals.

Mark Stieglitz has (I think) an Altair 8800 and has just recently completed a TVT.

John Zarrella is very interested in starting a computer program at his local high school and/or college.

Joseph Chalala points out that 2 of the diodes shown in the power supplies on page 55 (of NL ?) are shown reversed. The lower diode in both the +5 and -9 supplies. He also highly recommends Altaj Electronics (see ad in P.E.), and SD Sales Co. in Dallas Texas.

Mark Gang is a systems programmer and EE. He has completed construction of the TVT and has just about decided to go with the Motorola MC6800 rather than the 8080. He would like to get in touch with anyone else who is going this route. (We're certainly not pushing any particular type of microcomputer, Mark, but you -and others- should keep in mind that the bulk of software developed by hobbyist over the next few years for the home computer will be for the 8008/8080. And, after this thing really gets going the exchanging of that software should develope into a lot of activity. We hope.)

And...speaking of the MC6800....David W. Johnston mentions an ad he saw in the May Microcomputer Digest (P.O. Box 1167, Cupertino CA 95014) for a $300 microcomputer kit built around the MC6800. It contains two MCM6810L1 1K RAMS, an 8K ROM, 2 peripheral interface adapters, and an asynchronous communications interface adapter. No address given, but the kit is designated as MEK6800KI Design Package. Sounds like quite a deal.

Tom Earp (212 So. Adams St., Glendale CA 91205 - PH: (213) 242-7953) is an electronic engineer who recently attended the Varian V-70 Systems Maintenance course and was introduced to the Mark-8. He's going to begin construction shortly, and also has plans to move down into "computer land" (Orange County).

Robert Emerson has an XLO 8-bit mini with an ASR-33/TVT/& cassette. He is currently working on developing an assembler and utility programs. Would like to locate an affordable disc drive (wouldn't a lot of us).

George Siverts says that his group is using a microcomputer in developing an automated instruction lab for retarded children.

John Martin will be a senior at Fairmont High School next fall and he is already deep into electronics and computers. He is constructing an Altair 8800 and has completed a TVT. He, like most 8800 owners, is now hot after some inexpensive peripherals. We're keeping our eyes open for them, John, and trying to encourage the people capable of developing them to do so.

Mel Lehr will be building an 8080-based system in the future.

Richard Hwang is a hardware designer who is seriously looking over all of the available kits and evaluating them before making the plunge.

Robert Frazier is also planning to go the Altair 8800 route with a TVT from SWTP (he speaks highly of them from previous projects). -SouthWest Technical Products-

Randall Webb is a junior at UCSB studying EE & Computer Science. He built an Altair 8800 from a kit, had to send it back to MITs to get it going properly (bad IC), and everything is fine now. He doesn't plan to go back to MITS for the peripherals because of the prices (and he isn't alone there).

Dan Soldahl has just recently finished construction of his Altair 8800. He hasn't been exactly tickled with the service from MITS (delayed shipments & missing parts). He plans to use the computer for inventory control (at the warehouse he works in) and would like to get in touch with anyone who has had any experience with the MITS floppy disc.

Hugh Barth is a Mark-8 man! Wow, the way things have been going for the last three pages we were getting a little worried that there were any left! He is completing a vector interrupt system (w/highest priority lock-out) and an indexed jump feature (plans for which he will supply at a later date). He speaks very highly of the Scelbi manual "Machine Language Programming of the 8008."

Marvin Good reports that he encountered only minor mechanical problems in putting together his Altair 8800 (missing screws) but, because of costs, he is looking elsewhere for peripherals. He says that the zener regulators for the +12 & -5v were getting hot enough to "fry eggs." He cured the problem by raising the -5 bias resistor from 220 ohms to 820 and installing a +12v regulator (National LM 340T-12) in place of the 33 ohm resistor and 12v zener.

Gregory Lincavage is studying electronic technology thru CREI and will very likely branch into the computer training. He is a chess fanatic and has high hopes for someday being able to run a chess program on his home computer.

Richard Schultz plans to build the MIL microcomputer and will interface it to a TVT and a CREED TTY & cassette.

Roger Mikel reports that Pacific Semiconductors Inc., 200 W. Florence Ave., Inglewood CA 90301 (Ph: 1-800-421-5910 & ask for Don Smith) is a good place to do business with.

Forrest Duston is another 8800 owner and is building his own version of the TVT.

Clifford Zimmerman is interested in building an 8008 system and was told by the Digital Group that it would be a good idea to contact us before beginning construction.

Steve Fischer has an 8800 and is looking forward to acquiring and running BASIC on it.

Edgar Crisostomo is currently constructing a minicomputer of his own design.

John Arnold and Richard Whipple are math/physics teachers (Jr. College & High School) putting forth a joint effort in the construction of an Altair 8800. Dick has rented a pair of lines from Ma Bell so that he can operate from his home using a Model 15 TTY. The computer has 9K of memory w/a Model 19 TTY for on-site I/O. They have the monitor up and are working on an assembler. (You are aware of the fact that Intel has an assembler for the 8080?) They speak highly of the quality of the MITS kit but had some complaints on delivery.

Ed Lankford has a Mark-8 w/1K of 1101 memory and TVT. Next step is a cassette interface. (Incidently, he has a 370/155 w/a megabyte of memory at the office.)

Marlowe Cassetti has an operational Mark-8 with a TVT II. He is currently at work on the development of a cassette system.

G.L. Thrower has just completed assembly of an 8800 and has a Mark-8 kit on the shelf waiting for him to get to it. (Und vot you goin' do vid two of dem?)

William Precht is a Data Processing Consultant (with his own firm) and has just ordered an Altair 8800 (for pleasure or business or both?).

Dr. Anthony Mowak would like to get into some hardware related to his professional efforts (automation of analytical instrumentation) and also TV games for fun.

Harold Melanson recently ordered the MIL MOD - 8 boards and plans to upgrade it to an 8080 w/MiniMicro Mart's board. Comments on suppliers: "I've had good luck with Babylon, Valu-pak, James, Epic, Ancrona Corp., IEU (some bad IC's), Altaj, Godbout (double replacements for defective IC's). Poly-paks is iffy - had a lot of bad IC's & semiconductors from them & specs seem generally poor." Harold is an EE with several years experience on large CDC systems.

Chris Roth has been in the applications programming and system analysis end of the business for about 6 years and is now looking forward to an Altair 8800 so he can finally get down to the nuts and bolts and find out what makes these things tick. He's interested in games, household accounting, and using the computer as a general learning tool.

Mark Barker (K3RZG/2) is an IBM 360 type who hopes to get into building a micro soon.

Lawrence Miller is a member of the "Mid-Michigan Micro Users Group" which was (or will be) started by Bill Serviss. He has a Mark-8 which died - and has hopefully been reborn as of this printing.

Billy Pettit has been working on a home-brew 12 bitter for some time but has dropped that in favor of a Mark-8 (and he also has the boards for a Mod-8).

Jack Abbott is a senior engineering student building a PDP-11/35 or 40 comparable minicomputer as a project. (Why don't you build a neat front panel, Jack, and then put an LSI-11 behind it? Nobody will ever know - - unless they look, of course.) Anyway, Jack is interested in the common ground we all share in the quest for peripherals and the interchange of software (he will be simulating the 8008/8080 thru software - or emulation with firmware- when his machine is finished).

Neil Colvin goes first class. He has an Altair 8800 with 12K of memory, RS232 interface, Audio Cassette interface, and also the Assembler, Monitor, & 8K BASIC. He assembled the Altair in one weekend, and it worked fine the first time power was applied.

Fritz Roth is assembling a MIL MOD-8 (w/front panel).

Brice Hawley is currently in the design stages of building a 24-bit machine from scratch.

Brother Thomas McGahee is currently building a MOD-8 with a TVT of his own design. He has taught computer/electronic courses in a tech school using DEC equipment & is looking forward to the 8008/8080 programming (and, would like to see a BASIC for the 8008....as would an awful lot of other 8008 users).

James Willis is constructing a Mark-8 now & plans to build an Altair 8800 in the future.

Tom Scarpa has "constructed an 8008 microcomputer."

Hugh Barth Jr. is another Mark-8/TVT owner.

Walter Park has built the RGS 8008 system with 1K of MOS memory.

Owen McMahon has a Mark-8 and is in need of some software (Assembler, BASIC, etc.).

* * *

Paul Gumerman (Ph: -302-475-8007) has an RPC-4000 computer system for sale. It has 8K of 32 bit words, a drum, paper tape reader/punch (60 & 30 cps), and a lot of software (including Fortran and an assembler). $800.00.

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We've received a rather overwhelming response from the letter published in the "Computer Bits" column of Popular Electronics (June 75). The pile of letters is almost FIVE inches high! The letters seem to fall into three major catagories; 1) people who own or are in the process of building an Altair 8800, 2) those interested in building an 8800 or other microcomputer, 3) and those who just sent in their names and addresses.

Because of the great volumn we're going to just list the names (& pertinent comments) for each catagory. (NOTE: several people have indicated they would appreciate receiving some assistance and/or help in programming, construction, or just fundamentals. These people have been flagged with an asterisk next to their name. If you find one that lives in your area, give him a hand if you can.)

ALTAIR 8800 OWNERS

Ronald Tsubota - E.E. student
*Curtis Young - needs software help
Donald R. Hooker
Milton Gimenes - ham station (RTTY & SSTV)
J.M. Beggs - needs IBM Selectric interface help
Leo Edmond Cloutier
Robert Arnstein
T.H. Hsu
George Brussells
Paul Davis - turned on by his new toy!

ALTAIR 8800 OWNERS (cont'd)

John R. Lynch, Sr.
Allan Rein, M.D.
*DeWitt Hadnot, Jr.
Peter Tarca
P. F. Langlois
Jay Olson
Richard Miller - lookin' for BASIC
Joel Granick
Arnold Huge - music applications & waveform generator
Richard Dallara
Demo Agoris - says the MITS periphs are too slow & too expensive
Forrest Duston
Svein E. Mikkelsen - loves his 8800
Randall Webb
John L. Wheeler
David Lank
*Jack Maley - still blowing fuses?
H.S. Neilinger
John L. Dubois, Ph.D.
Lyle C. May
James H. Nestor, Assoc. Professor - Education-oriented software development & exchange of programs
*J.A. O'kavage - can't get it going
Fred Petterson
Gerard Bilodeau
Ron Estes
Charles McKinnon, Jr.
Alfred Buell
Marshall Losee
M.D. Rivers
Grant Johnson
Jay Woods
John Yerxa
Louis Wheeler - professional programmer (possible contributions for SM6800 µprocessor also)
Dennis Moore
Charles Shellhamer
James Staber
G.L. Thrower
Jack Coats, Jr. - has developed a Multi-task exec for 8800 which needs real-time clock
David Zernoske
Gary Tack
Fred Altman
Lawrence J. Richter
David O. Valliere - Chemical eng., has PC brd etching facilities / also plans to develope 8008/8080 simulator for PDP-8 & 11
Jim Willmore
Robert Huston
Joseph Sanger - has B.S.E.E. & is currently med student
Wayne Green - Editor/Publisher 73 magazine
Frederick A. Ball
John H. Smith, Jr., M.D.
Mark Stieglitz - has 16K of core memory w/TVT & lookin' for BASIC
Scott J. Craig - E.E. student
Dennis P. Dupre
Keith L Kendall
Steve Grumette
Ronald L. Herff - small business software development
Frank Rivera
Richard E. Ulmer, Jr.
David L. Jaffe
Mike Bennett - research math section, Gerber Products
Vern Muhr - can offer a PROM programming service
John Sommer
Thomas C. Stowe - small business software development for a client
Randy Kelsey
Randall Walker
Chris Leach
Jan Persson
Irwin A. Danto
Neil Lash - Electronics Dept., Broward Community College
A.J. Keck
Kenneth A. Hensey
Rex Wolfe - numerical algorithms development
Joseph Schwarz
Clifford H. Fusk
Murray Shevick, M.D. - interested in developing software for ECG storage & processing, etc.
William Henry - represents an Altair users group
Michael Sereg
S.M. Herbage
Joseph Dworzan
Robert Bailey
Howe C. Fong
Grayson Evans - School of Information & Computer Science (building an 8080 based computer)

INTERESTED IN AN ALTAIR 8800 (or other microcomputer):

Carl Gieseke
Dale Chapman
*Gerold S. Kerlin
David A. Foley
Marshall H. Edgell
2nd Lt. Robert Frazier - has B.A. in Math & Computer Science
Irl Yeo
Foy Willson - head of Electronics Dept. at Lenoir Comm. College
Glenber L. Hinkle
Michael B. Lamberton
Wayne Wenzlaff - interested in inventory & stock movement control
Calvin M. Osborne
John Witunsky
Charles A. Vigh
Andrew Stangel - is a computer sci student trying to convince the faculty that an Altair would be a worthwhile school project ...he needs some help (MITS, are you there?)
Joseph P. Chalala - long on hardware ability, short on software
ET-1 Jeff Hardy
Harris G. Allen
J.L. Hayward
M. Douglas Callihan
Robert H Ahlers, Jr.
Richard Petersen
Levello Haynes
Robert E. Emerson - has an XLO minicomputer (vot is dat?)
Reed E. Phillips, M.D.
Jonathan M. Prigot
Bruce Anderson - (you bet it'll make a good hobby, Bruce!)
Jerry Fife
Thomas E. Reed - engineer/hobbyist
Michael Strong - E.E. interested in T.V. & motion picture applications (film cataloguing, etc.)
Fielding S. Ellis - heavy in programming experience
H.A. Ashdon, USCG - has over-all responsibility for the Navigational Buoy "Boston", which is an impressive electronic monster which recently replaced CG Light Ship Boston & a crew of 16
Bob Phillips (WN7BIR) - interested in ADC & DAC applications with a video synthesizer/processor
John Zarrella
Steve Hopkins
Sheridan George
C. Adrian Shamblin - is a "½ systems programmer" and "½ programmer/analyst" (and that makes a whole what??)
Richard Chen - says he'll probably get the 8008 so he can keep up with our group (wait til he reads this NL!)
David Price
W. Michael Shebesta - an accountant interested in business systems programs
Elwood N. Bemis, Jr. - will be working toward computer-generated imagery on TV or Oscope
Thomas Hostetler - an amateur astrologer who will be putting together a system to calculate astrological charts to the second of a degree
Gary Sandahl
Steve Savin
John S. Arrington
William Kelley
*Robert L. Ruyle - a television camera engineer
Grant C. Schafer
Michael J. Cykana
Gary Walker - prof. programmer interested in small business, games, and etc. programming
Harold Melanson
Roger Behrns
Charles Heick
Nils James Carlson
Gerald Chapman
James M. Keller - Mathematician/physicist
Roger Rusch - Comp Sci/Math student at Southern Illinois U.
Charles H. Aldrich III

If you didn't find your name listed in the previous pages....it's because the guy doing the typing couldn't decipher your signature. If you haven't written in telling us what your future plans are, then by all means do so. Somebody else might be working in the same area, and you can help him or visa versa. And, that's what this newsletter is all about, folks.

Thank you

R.O. Whitaker (ROWCO Engineering Co.) has acquired an Altair 8800 kit which will be used as a translator within a new type of keypunch system. The unit will have a ten key combinational keyboard generating a new code called "ROWCODE." The Altair will be used for translating from ASCII, EBCDIC, Hollerith, or any other code. A floppy disc and CRT will also be interfaced to the system. Mr. Whitaker's phone # is: ⅃\Δ_/\Δ⅃Λ∠

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NOTE: If any of you commercial users of the 8080 come up with interface designs which could be released thru this newsletter....there are one heck of a lot of hobbyist out there just crying for that kind of help. O.K.?

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INTERESTED IN AN ALTAIR 8800 (or other microcomputer):

Vince Vigus - 8008 (Mark-8?)
Terry McCarty - WA5NTI/4 - Works for the Army's Computer Performance Evaluation Group
Mark Gordon - Computer Science student
S/Sgt. Pierre A. Lamb
*Louis Boyle - interested in automotive navigational aid applications (& has a lot of questions)
*Mark Elgin
Jim Schubert - High school student
Ken Browning - would like to get in touch w/others in the Vancouver area
John D. Withrow, Jr. - Comp Sci student at U. of N.C.
Stan Head - is a systems programmer for IBM (15 yrs) currently working with speech analysis & synthesis. Wants Altair for sensing, control, & game applications
Robert Farrell - recent graduate of U. of Michigan in Computer Engineering with emphasis on mini & micro computers
Steve McNeal - & six engineers at Cathedral Teleproductions are rarin' to go
Chris Sivertz - E.E. student at U. of British Columbia
H.W. Spence
Lewis Hamburger
L. George
Douglas Beairsto
John N. Finster
Peter A. Crill
*Charles M. Cormen
Evensen - interested in navigation & control functions aboard a commercial fishing boat
*Donald D. McIntyre
John D. Adams

\+ David MacMillan
\+ Brian C. Walsh
\+ Norman R. Buchanan - interested in a mailing list computer system (approx 60,000 names)
\+ Greg Bowman
\+ James E. Allison
\+ Neil Hansen
\+ David G. Earl
\+ Donald Sanford - interested in an inventory control & bookkeeping system for his auto parts house
\+ Martin Malone
\+ Roberto R. Denis
\+ D. Bryce
\+ Brian Maxson
\+ Derek H. Davis
\+ F. Newton Fallis - an architect interested in computer applications in his field
\+ Osvaldo Hilde
\+ Eugene B. Loop - has a familiar problem: justifying his new hobby to the "boss"
\+ M. Scott Adams (WN4KWH)
\+ Donald K. Pine, M.D., F.A.C.S.
\+ Lyle F. Mays - working toward a Ph.D. in computer science
\+ N.R. Whitehead
\+ Gary Williams - is going to build the Altair from scratch
\+ Paul Silagi
\+ Darrell Flynn
\+ Sonny Deubow
\+ Gary Buhrmaster - going with the Motorola chip
\+ Ted B. Sierad
\+ John Eckert - wondering about the NS PACE chip

John Craig recently recruited three more members during a Varian V-70 course. (Which, incidentally, is his last because John is leaving Varian to go with National Semiconductor Corporation.....and finally get home with his family.) These three gentlemen are engineers for the U.S. Navy and will be responsible for manning a mobile van which will literally plug into a warship and be able to simulate combat exercises while at dockside. They're going to build an 8008 or 8080 based system as a group project with each one taking a particular section to build.

John T. Soppeland	James V. Ursin, Jr.	Ed Moyle
250 E. Pleasant Valley Rd. 102	1534 Thrush Ave.	P.O. Box 219
Oxnard, Calif. 93030	Ventura, Calif. 93003	Port Hueneme, Calif. 93041

September 15, 1975

37 Eighth Avenue
Brooklyn, N.Y. 11217

Dear Hal,

This letter is to cast my vote for you and John Craig continuing to publish the Micro-8 User Group Newsletter. If necessary, I am willing to pay a substantially higher subscription.

My reason for voting Yes is that I am about as ignorant as one can get regarding computer hardware. I am at the mercy of the last stimulating article or advertisement that catches my eye, and I say"Hot dog, that's for me!" without really knowing what I am spending my money on.

I suppose the appearance of BYTE has made you wonder whether there is still a reason for you to continue publishing the Newsletter. I would say yes. The articles in BYTE may be a hobbyist's dream--accurate, complete, up-to-date, and just what he want's to know--but BYTE is still a commercial publication and the publisher would not dream of knocking an advertiser or potential advertiser, nor would he dream of comparing products and say that item A is better than item B. I note, for example, in issue 2 of BYTE, that the Publisher himself went around the country visiting potential advertisers and he couldn't have had a more wonderful time or met a more wonderful bunch of fellows, all of whom were doing wonderful work.

Now that I've cast my vote for your continuing to slave away for my benefit, I'll tell you something that I would like to see soon in the Newsletter. That is a comparative analysis of 8008, 8080, M6800, and PACE-based micro-computers. My Big Fear is that I will spend several hundred dollars--an enormous sum--on a particular system only to have the investment become obsolete within a couple of years. I want a micro-computer very much, but I can't afford to put out money every so often as if I were buying something out of Detroit.

Yours,

MK

Morris Krieger

DEAR HAL AND JOHN

1). THANK YOU BOTH VERY MUCH FOR THE LATEST ISSUE OF THE NEWSLETTER. IT IS TRUELY APPRECIATED BY ALL OF US WHO ARE STILL ACTIVE IN THE HOME-BREW OF MICRO-COMPUTING GEAR. THERE ARE ADEQUATE RESOURCES FOR THE APPLIANCE OPERATORS (ALTAIR !!) BUT YOU FELLAS ARE THE VERY BEST RESOURCE FOR THOSE OF US WHO LOOK FOR SPONTANEOUS AMATEUR ARTICLES. AT THE BOTTOM OF PAGE 2 YOU ASKED FOR COMMENTS ON THE DIRECTION THAT THE NEWSLETTER MIGHT TAKE IN THE FOLLOWING THREE ISSUES. I TALKED WITH BUD SOUTHARD IN CEDAR RAPIDS (WE ARE HAM OPERATORS) AND ASKED THAT HE ALSO SEND YOU HIS THOUGHTS AND SUPPORT.

THOSE OF US IN AMATEUR RADIO HOBBIES FOUND THAT OUR JOURNAL, - Q S T - LOST TOUCH WITH THE STATE-OF-THE ART TECHNICAL AREAS ABOUT 1965. SEVERAL OF THE HAMS ON THE EAST COAST WERE TECHNICALLY ORIENTED AND FOUND THAT Q S T AND 73 DID NOT MEET THEIR NEEDS, SO THEY PUBLISHED A MORE TIMELY MAGAZINE "HAM RADIO".

HAM RADIO MAG. HAS BEEN A WONDERFUL SUCCESS AND Q S T CONTINUES TO DECLINE OFFERING ONLY SOCIAL OR "CLUB" NEWS. I THINK THAT BYTE PROBABLY WILL OFFER GREAT TECHNICAL ARTICLES AT THE BEGINNING, BUT WITH HELMERS AND WAYNE GREEN AT THE CONTROLS I EXPECT IT WILL EVOLVE INTO ANOTHER "QST" TYPE OF PUBLICATION. SO WITH THAT IN MIND, PLEASE CONTINUE THE NEWSLETTER SO THAT WE WILL HAVE A CURRENT AND TIMELY SOURCE OF EXPERIMENTAL CIRCUITS AND INFORMATION.

I HAVE OFTEN WONDERED WHERE ALL THE "REJECTED" ARTICLES GO ? INTO THE BIT BUCKET IN THE SKY I GUESS. I MEAN, WHEN A FELLA SUBMITTS A ARTICLE THAT DOESN'T MEET THE GREEN OR HELMERS EDITORIAL STANDARD, WHAT BECOMES OF IT ?? TERE MAY BE SOME SUPER TOPICS THAT NEVER WILL BE PUBLISHED UNLESS FELLAS HAVE AN ALTERNATIVE "VOICE" THROUGH YOUR EFFORTS IN THE MICRO-8 NEWSLETTER !!!

TWO OTHER PURPOSES FOR THE FINE NEWSLETTER OCCUR TO ME; ONE IS THAT IT IS INDEED A FORUM FOR THOSE WHO WANT TO SHARE THEIR EXPERIENCES ORDERING FROM COMMERCIAL PARTS HOUSES. I HAVE PARTICULARLY EJOYED YOUR INABRIDGED TREATMENT OF MINI MICRO MART, AND MANY OF US HAVE HAD TERRIBLE RESPONSE FROM THEM.
THE SECOND PURPOSE MAY BE A PLACE TO ADVERTISE OUR OWN SURPLUS - WHEN WE DON'T WANT TO WAIT FOR THREE MONTHS TO ADVERTISE IT IN THE COMMERCIAL PUBS. AND DON'T WANT TO PAY THOSE OUTRAGEOUS RATES! SO WHEN WE COME ACROSS A FEW POWERSUPPLIES OR WHATEVER - WE CAN SAY SO IN THE NEWSLETTER.

IN ADDITION, YOU OFFER THE ONLY PLACE TO GET ACQUAINTED WITH OTHER HOBBYISTS - I AM ESPECIALLY INTERESTED IN THE NEXT ISSUE WHERE YOU WILL LIST THE MEMBERS BY LOCATION (I HOPE).

2). I FINALLY PURCHASED MY FIRST COMPUTER !!!! I BOUGHT A "USED" MIKE 201 (MARTIN RESEARCH) FROM MARK CONDIC. I OWE IT ALL TO YOU GUYS BECAUSE HAD IT NOT BEEN FOR YOUR REFERENCE TO MARK IN THE NEWSLETTER (VOL 1 #7 PG 3) I WOULD HAVE NEVER KNOWN ABOUT THE EXCELLENT MIKE SERIES MICRO'S. SO THANKS TO YOU BOTH FOR POINTING TO A GUY (MARK) WHO HAS ALL THE INSIDE DOPE ON MARTIN RESEARCH AND THEIR EXCELLENT GEAR. I AM ESPECIALLY PLEASED WITH THE BUS STRUCTURE. I AM ABLE TO DECODE I/O STROBES WITH A SINGLE 74LS138 AND A COUPLE OF TRI-STATE BUFFERS. THE 50 WIRE BUS BETWEEN BOARDS IS A SUPER CONVENIENCE WHEN TESTING AND DEVELOPING NEW CIRCUITS. THE MR 8008 MANUAL IS BEYOND MY TECHNICAL LEVEL SO I WILL HAVE TO LEAVE ITS EVALUATION TO YOU FELLAS (HAR HAR). IN ANY CASE, I CAN RECOMMENT THE MIKE 20X SERIES AND MR AS A SUPER SOURCE OF MINI GEAR. THEIR PRICES ARE WELL WITHIN RANGE FOR A HOME-BREWED SYSTEM.

I WANT TO OPERATE MY UNIT ON HAM RADIO, SO I AM LOOKING FORWARD TO SOME INFORMATION FROM THE DIGITAL GROUP (WHERE ARE THEY ? GONE ON VACATION ?) . AND DID YOU SEE THAT DODD DIGITAL DESIGN (219 WAPLES PARK, FAIRFAX VA. 22030) IS OFFERING A PROGRAMMING SERVICE AS WELL AS SEVERAL NEAT SOFTWARE ITEMS. I ALSO FOUND AN ADVERTISEMENT FOR PINON ELECTRONICS IN MESA ARIZONA WHO OFFER AN AUDIO INTERFACE THAT WILL TRANSLATE MORSE CODE TO PARALLEL ASCII. YOUR READERS MIGHT BE INTERESTED IN EITHER ONE OF THOSE ALTHOUGH THEY ARE REALLY DIRECTED AT THE HAM FRATERNITY.

3). I NEED A UART INTERFACE AND DON'T SEE AMY ON THE HORIZON. IF YOU FIND ONE UNDER $100 PSE PASS IT ALONG IN THE NEWSLETTER.

4). KEEP UP THE GREAT JOB AND THERE ARE A LOT OF US OUT H RE WITH NO TIME FOR LETTERS BECAUSE WE ARE TOO BUSY BUILDING. WE DO T R U E L Y APPRECIATE YOUR EFFORTS AND WILL CONTINUE TO SUPPRT YOU WITH WHATEVER IT TAKES ($$$$$ INCLUDED).

SINCERELY

KEN

KEN HOPPER
4021 S. BOWMAN AVE.
INDIANAPOLIS, IN
46227

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Rowco Engineering Co.

4719 SQUIRE DRIVE
INDIANAPOLIS, IND. 46241
PHONE ⅃\Δ _/\ Δ⅃Λ∠

September 20, 1975

Gentlemen:

Have an Altair up and running. From a kit. Only one mistake in assembly. Two weeks to find it.

Have a ten-key combinational keyboard interfaced. As discussed in the appended reprint from EDN. Will interface a TV monitor and a tape system. Will then have a key data system. To be installed at a keypunch service.

The keyboard feeds to a parallel 8 bit IO card. Keyboard parts cost is about $25.00. We could provide plans and software at a nominal price.

Anyone interested in forming a Computer Club in the Indpls area is invited to contact the undersigned.

Yours very truly,

R.O. Whitaker

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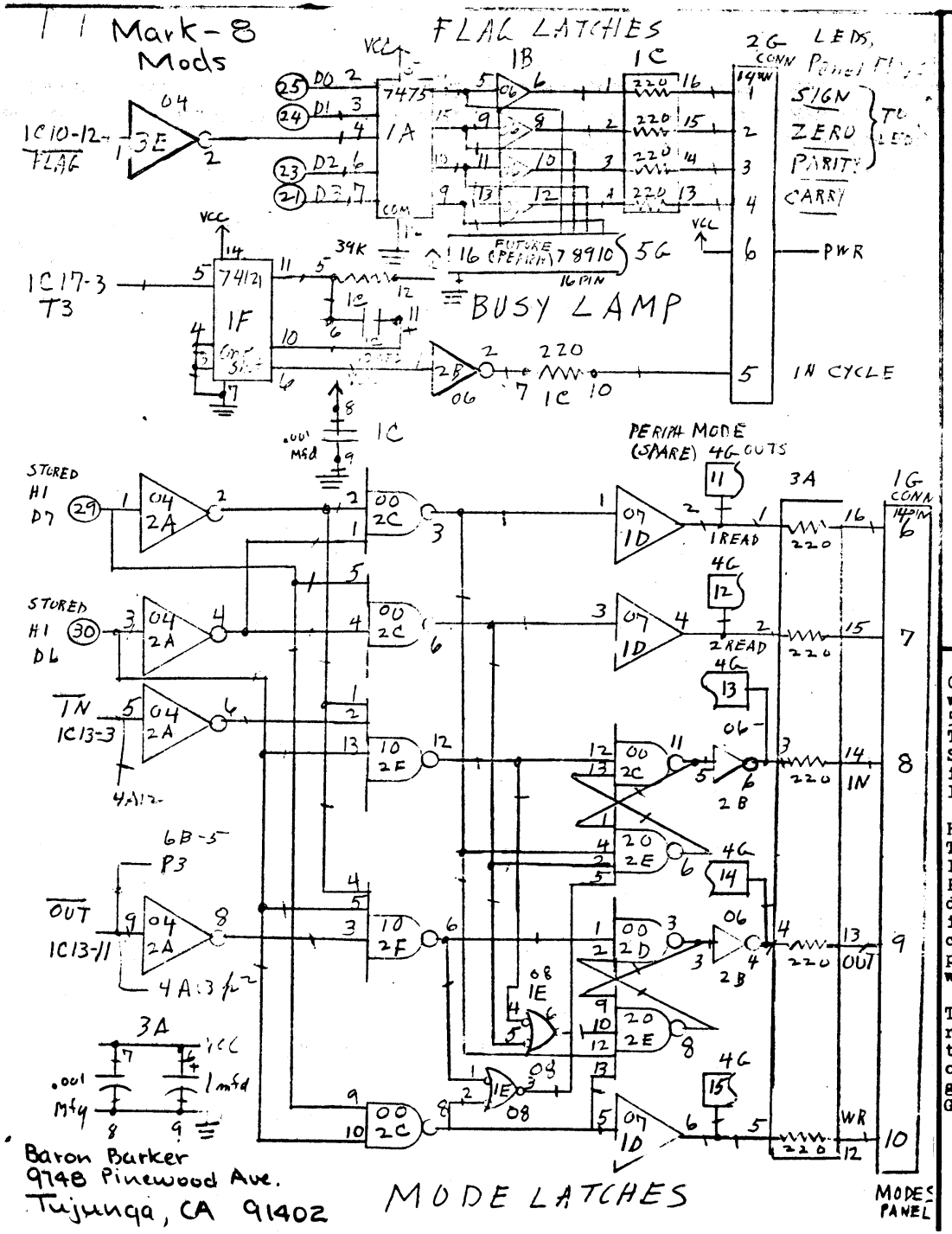


Tychon

TYCHON, Incorporated, P.O. Box 242, Blacksburg, VA. 24060
703—951-9030

Aug. 25, 1975

Dear Hal:

I have enclosed a copy of Bugbook III for you that you might like to mention to readers of the newsletter. I think that you'll find it an excellent introduction to the Intel 8080 in any configuration. Its self-teaching and lends itself to use by individual hobbyists or engineers or use as a lab manual.

E&L instruments, Inc., 61 First St., Derby, CT 06418 is selling the books at $14.95 each. We have other books in the works and will try and keep you and the Newsletter readers up-to-date. I also sent you a set of Bugbooks I and II. Please let me know if you haven't received them.

Best wishes.

Very truly yours,

Jonathan A. Titus

JAT:sjt

Grant Runyan, 1146 Nirvana Road, Santa Barbara, CA 93101 writes that he has obtained another small supply of the 5V 6amp power supplies which are so good for micro computers. These also supply 12V, 48V, and 200V each at 1 ampere. Schematics are furnished as well as instructions for obtaining -5V, -9V, and -12V. The price is $25 plus postage on 15 pounds and 6% tax in California.

He writes that he has finally been successful in making the TVT-1 into a very successful CRT terminal over the phone lines with the Santa Barbara Schools' Nova-2 and UCSB's PDP-11. What took so long getting this working was the discovery that the surplus modem had to have an inverted input before the computer would recognize that it had a customer on the line. He is preparing final plans for publication in the NL, but anyone who is interested can write for some details.

The Santa Barbara computer enthusiasts, hobbyists, and related freaks finally got together and had 45 people at their first meeting. They voted not to make a formal organization but to meet monthly to exchange ideas and get better acquainted. Local people are invited to phone Grant for the time and date of the next meeting.

MR HAL SINGER EDITOR
CABRILLO COMPUTER CENTER
4350 CONSTELLATION ROAD
LOMPOC CA 93436

DEAR HAL,

HOPE YOU WILL SERIOUSLY CONSIDER KEEPING THE NEWSLETTER ALIVE & KICKING. I HAVE BEEN WITH YOU ALMOST FROM THE START AND THERE IS NO OTHER SOURCE OF INFORMATION THAT HAS GIVEN ME AS MUCH ALL AROUND HELP & ASSISTANCE AS WELL AS BEING JUST GOOD INTERESTING READING. YOU HAVE BROUGHT AN ENTHUSIASM AND FRESHNESS TO THE LETTER THAT HAS RUBBED OFF ON ALL OF US FREAKS & THE HONEST COMMENTARY AND TELL IT LIKE IT IS ATTITUDE PUTS THE SLICKS TO SHAME AS THEY SEEM FOREVER TIED TO THEIR ADVERTISERS. THERE IS NO BETTER COMMENTARY ON THE QUALITY OF THE GROUP THAN THE CONTRIBUTORS IT ATTRACTS: TERRY RITTER - BILL SEVERANCE - PHIL MORK WILLIAM WHITE - TO NAME ONLY A FEW WHO REGULARLY COME UP WITH TERRIFIC MATERIAL. I'm SURE THAT ALL THE PARTICIPANTS WOULD BE GLAD TO COVER WHATEVER WOULD BE REQUIRED TO KEEP THE GROUP MOTIVATING. I FOR ONE AM QUITE SURE THAT MANY OF MY PROJECTS WOULD NEVER HAVE GOT OFF THE GROUND & UP AND RUNNING WITH OUT THE ADVICE AND AID OF PEOPLE WHO HAD WORKED THEIR WAY THROUGH THE SAME PROBLEMS PEOPLE LIKE JIM FRY & STEVE CIARCIA HAVE BEEN MOST GENEROUS WITH THEIR TIME & EXPERIENCE IN GETTING ME OVER THE HUMP IN DEVELOPING MEMORY AND POWER SUPPLY. EVERY REQUEST FOR HELP HAS COME UP WITH FRIENDLY KNOWLEDGEABLE SUGGESTIONS FROM MORE MEMBERS THAN I CAN NAME THOUGH I WOULD LIKE TO MENTION EACH PERSONALLY, SO AS NOT TO SLIGHT ANYBODY. YOU, YOURSELF HAVE GIVEN ME MANY HINTS AND PIECES OF MATERIAL I COULD NOT HAVE OBTAINED BY ANY OTHER METHOD

WE HAD A MEETING LAST SATURDAY OF THE CHICAGO GROUP, LARGELY MADE UP FROM NAMES OUT OF THE NEWS LETTER, WITH A VERY FINE TURNOUT. BILL PRECHT WAS LARGELY RESPONSIBLE FOR THE ARRANGENTS AND DID A FINE JOB. MADE MANY REWARDING CONNECTIONS AND PICKED UP MUCH NEEDED INFORMATION. WAS GLAD TO SEE PEOPLE LIKE BOB SWARTZ, WHO I HAD BEEN CORRESPONING WITH, AND WAS ABLE TO DISCUSS SOME OF THE FINER POINTS OF PROJECTS I'M INTO AT LENGTH. THIS IS THE KIND OF EXPERIENCE THAT IS INVALUABLE TO ANYONE NOT IN THE MAINSTREAM OF THE COMPUTERWORLD AS MOST OF THESE GUYS KNOW WHERE & HOW TO LATCH ONTO NEEDED MATERIAL AND INFORMATION. THIS IS THE AREA THAT THE NEWS LETTER EXCELLS IN ALSO, I MUST ADD. MANY OF THE ITEMS AND TID-BITS OF INFO I WOULD NEVER OF HEARD OF IF NOT FOR THE NEWSLETTER. WHILE "BYTE" IS A NICE SLICK PRESENTATION IT IS SOMEWHAT LACKING IN THIS PERSONAL TOUCH. AND R-E & P-E HAVE THEIR MOMENTS BUT AS HAS BEEN MENTIONED ARE SOMEWHAT SHALLOW IN THEIR COVERAGE TENDING TO GLOSS OVER THE TOP OF SUBJECTS THAT SHOULD BE GONE INTO IN DEPTH. THEY GET YOUR INTEREST UP WITH A LOT OF FLASH AND THEN YOU DONT GET ANY MEAT & POTATOES TO SATISFY YOUR INTEREST. I'M THINKING THAT MANY OF THE SUPPLIERS ARE OPERATING ON THIS SAME PRINCIPAL AND THIS IS TOO BAD AS THEY ARE THE ONE'S WHO COULD REALLY COME THROUGH FOR US, AND WOULD SEEM TO BE JUST GOOD BUSINESS FOR THEM. THE ONLY WAY I HAVE TO REALLY EVALUATE SOME OF THESE OFFERINGS IS FROM THE COMMENTS & CRITISM THAT PEOPLE HAVE BEEN

(3)

MAKING IN THEIR LETTERS TO YOU. AS YOU HAVE SAID MANY TIMES YOU SEND YOUR MONEY AWAY AND HOPE YOU GET WHAT YOU PAY FOR. THE MOST AGGRAVATION IS WHEN YOU GO FOR THEIR BALLY-HOO AND THEN THEY LET YOU HANG BY YOUR THUMBS FOR MONTHS WHILE THEY GET THEMSELVES TOGETHER ENOUGH TO DELIVER. I THINK GODBOUT & BURGOON ARE WISE TO WAIT UNTIL THEY ARE READY BEFORE THEY COME OUT WITH SOMETHING NEW & IT WOULD SEEM TO BE JUST GOOD PUBLIC RELATIONS ALTHOUGH I'm ANXIOUS TO SEE JUST WHAT THEY WILL COME UP WITH.

MOST OF MY SYSTEMS ARE COMING ALONG BUT I SURE WOULD LIKE TO GET OUT OF THE HARDWARE STAGE SEEMS LIKE EVERY TIME I FEEL LIKE I'M ON TOP OF IT SOMEBODY ELSE COMES UP WITH A MODIFICATION OR ENHANCEMENT THAT LOOKS SO GOOD ITS IRRESISTABLE HAVE RUN MANY SIMPLE THINGS IN THE PROCESS OF DE-BUGGING AND CANT WAIT TO REALLY GET INTO IT. STILL STRUGGLING TO BRING ALL THE BITS & PIECES INTO A COMPREHENSIVE SYSTEM. HAVE BEEN PLAGUED WITH LITTLE ODDS & ENDS OF FAILURES THAT WERE HARD TO TRACK DOWN. HAD A PROBLEM FOR WEEKS WITH THE ALTAIR PROTECT CIRCUIT AND MITS JUST ADMITTED THEY HAD A CRITICAL PIN TO +5 INSTEAD OF GROUND / PROBLEM SOLVED. TV II HAD SOME CHIPS THAT DIDN'T TAKE THE BURN-IN BUT IT IS FUNCTIONING WELL ENOUGH WITH REPLACEMENT STILL TRYING TO GET THE MARK-8 ORGANIZED WITH SUDING'S STUFF. DOCUMENTATION SLOW COMING FROM BOTH THE DIGITAL GROUP & MARRY GOLDBERG (THAT S.O.B. HAS HUNG ME UP MORE THAN ANY OTHER SUPPLIER)

(4)

BOB SWARTZ HAS GOT ME INTO THE MIL-MOD MOSTLY BECAUSE OF THE PROGRAMMER ON THE BACK-PLANE AND I SHOULD HAVE ALL THE PARTS I NEED SOON. BOB COOK STILL HAS NOT COME UP WITH THE TYPE-FACE NEEDED TO MAKE THE CREED USEFUL & I'M CONSIDERING GOING TO SOME OTHER FORM OF HARD COPY IF I CAN MAKE A CONNECTION THAT WILL NOT COST AN ARM OR A LEG. ONE OF THE GUYS AT THE MEETING JOKED THAT THE FURNITURE MONEY HAD GONE INTO COMPUTERS & I'm GETTING PRETTY CLOSE TO THAT. SURE AM GLAD TO SEE MEMORY PRICES COMING DOWN AS I CAN USE ALL I CAN GET FOR REAL TIME WAVE SHAPES. BUT ONE THING LEADS TO ANOTHER, MORE MEMORY, MORE POWER SUPPLY AND SO FORTH.

PLEASE FIND SOME WAY TO KEEP OPERATIONAL WITH THE NEWSLETTER — LOOK FORWARD TO EVERY COPY AND FIND SOMETHING REWARDING AT EACH RE-READING HOPE TO HEAR FROM YOU SOON.

YOURS TRULY

W. H. BURTNER
RR2 BOX267
VALPARAISO IND 46383

HELLO;

I READ ABOUT YOUR GROUP IN POPULAR ELECTRONICS (JUNE '75) AND WAS PLEASED TO FIND THAT THERE ARE OTHER PEOPLE INTERESTED IN BUILDING THEIR OWN COMPUTERS. I AM NOT ENTIRELY A HOBBYIST SINCE I HAVE HAD SEVERAL YEARS EXPERIENCE IN DESIGN OF LOGIC AND COMPUTER SOFTWARE. ONE OF MY PROJECTS BEING THE DESIGN OF A COMPUTER SYSTEM BASED ON THE INTEL 8080 TO BE USED IN REMOTE BATCH TERMINAL AND WORD PROCESSING SYSTEMS. I AM NOW BUILDING MY OWN SYSTEMS USING AN 8080 AND WOULD LIKE TO DETAIL SOME TECHNIQUES WHICH I AM USING.

SALIENT FEATURES ARE:

1- A STRUCTURE WHICH ALLOWS MEMORY REFERENCE OR INPUT/OUTPUT INSTRUCTIONS TO BE USED FOR I/O.

2- INTERLOCKED (HAND-SHAKING) DATA TRANSFER WITH TIMEOUT INTERUPT IF NO ACKNOWLEDGE IS RECEIVED IN 10mS.

3- MEMORY PROTECT INTERUPT IF THE STACK OVERFLOWS ~~OR~~ BELOW A PROGRAM DEFINED ADDRESS

4- MULTI-LEVEL PRIORITY INTERUPT STRUCTURE ALLOWING 16 DEVICES PER LEVEL WITHOUT NEED FOR POLLING

5- DIRECT MEMORY ACCESS CAPABILITY.

CONSOLE CAPABILITIES:

1- MEMORY OR I/O ACCESS

2- DISPLAY OF DATA AND ADDRESS

3- DISPLAY OF PROGRAM COUNTER OR STACK POINTER WITHOUT SOFTWARE ROUTINES

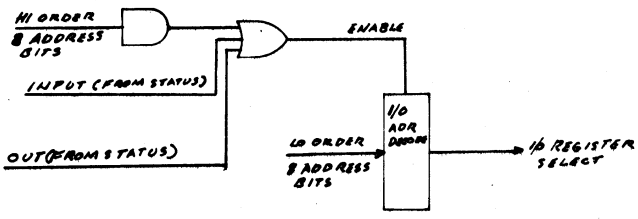
4- CYCLE STEP OR INSTRUCTION STEP

OPERATION:

WHEN M1 IS TRUE IN THE STATUS LATCH THIS INDICATES THAT AN INSTRUCTION FETCH IS TO BE EXECUTED. AT DBIN TIME THE ADDRESS ON THE BUSS MUST BY DEFINITION BE THE PROGRAM COUNTER. THIS INFORMATION IS LATCHED FOR DISPLAY.

THE STACK POINTER DISPLAY FUNCTIONS IN MUCH THE SAME MANNER EXCEPT THAT THE STACK MAY BE USED IN EITHER READ OR WRITE MODES.

MEMORY REFERENCE I/O



OPERATION:

THE TOP 256 MEMORY ADDRESSES ARE ASSIGNED AS I/O DEVICE REGISTERS. WHEN THE 8 UPPER ADDRESS BITS ARE TRUE THIS IS USED AS AN ENABLE FOR AN I/O ADDRESS TO BE DECODED, ADDITIONALLY INPUT OR OUTPUT FROM THE STATUS LATCH ARE USED AS ENABLES.

THE RESTRICTION IS THAT THE TOP 256 ADDRESS MAY NOT HAVE MEMORY.

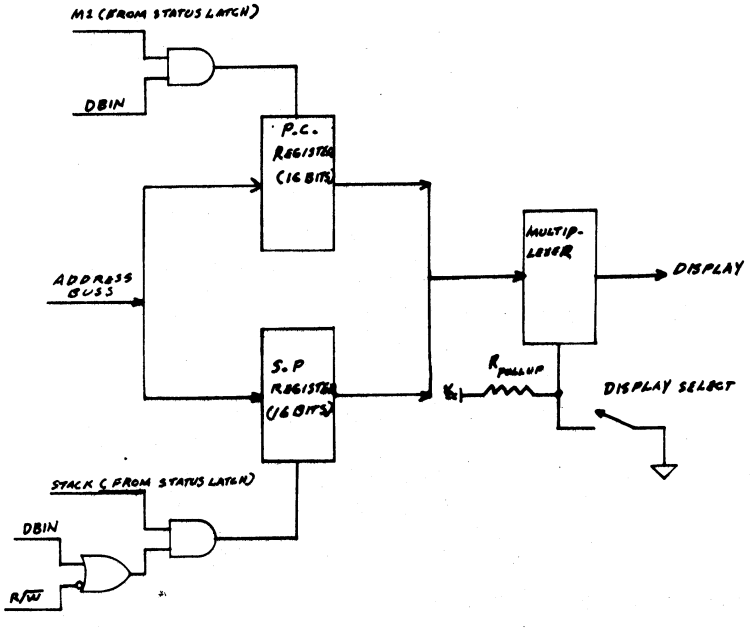
THE ADVANTAGE IS THAT ANY MEMORY REFRENCE INSTRUCTION (EG ADD M, MOV M,R) MAY ACCESS ~~AN~~ I/O. THIS IS OFTEN HANDY IN COMPLEX PROGRAMS.

5- A PROGRAM DEBUGGING TOOL WHICH IN CONCLUSION I HOPE YOU WILL FIND THESE ITEMS WILL FORCE THE PROCESSOR INTO AWAIT MODE USEFUL AND WILL GET IN TOUCH WITH ME REGARDING IF A PRESELECTED ADDRESS IS MATCHED AND MEMBERSHIP IN YOUR GROUP. MY NAME AND ADDRESS DATA IS FOUND TO MATCH A PRESELECTED COMPARE ARE BELOW.
(EG EQUAL, NOT EQUAL, GREATER, LESS, GREATER OR equal, ETC.)

I WILL NOW GIVE BLOCK DIAGRAMS OF SOME OF THESE FEATURES. THE MORE DIFFICULT TO ACHIEVE FEATURES I WILL MAKE AVAILABLE AT YOUR REQUEST ALL SHOULD BE ADAPTABLE TO THE ALTAIR.

YOURS TRULY
JOHN W. GLUCK
1010 PLESSIS APT. 1
ST. VINCENT DE PAUL, LAVAL, QUE
CANADA

STACK POINTER/PROGRAM COUNTER DISPLAY



THE NEW LISTING

Several neat new items on this listing. But first, the news; I have powered up my PDP-11/05 at last! A few bugs left to iron out but it appears to be working and almost ready. My system will consist of a PDP-11 processor with 8K of core, a 33 TTY, 2 CES tape drives, high speed paper tape reader (I need a punch, can anyone help me on this?), 2 nine track magtape drives (I need heads for these), a disk, a nice printer, a storage scope, and a plotter. Not necessarily in that order. It looks like all of that will take about a year or so.

Since last listing I' picked up some other stuff and met some more interesting people. It's really terrific to come across people that have their own computers. If you have a friend who wants to correspond about computers, let me know. I like to write letters and now since I am a part time student, I have a little more time to do it. I enjoy even more talking on the phone, but that is expensive.

Work on the CES tape standard is pretty much done. If anyone is far enough along to need it, let me know and I will send the data along for the cost of copying. There are now 24 people that I know of that have the CES drives, most have 2, some have 3 or 4. Any way, the group is growing.

Let me know what you have running, or what you have to sell, or what you need to buy. I think I can help you out a little with hardware problems. If you come accross any neat collections of computer stuff and can't afford to buy, sometimes if you tell me about it we can work out something with the other folks on my list so that you can get the item you want at a lower price.

I like to trade too, and a lot of times we can work out things so that a trade will reduce the cost of something you want.

If you have any questions about any of the items described in the listing don't hesitate to write or call.

MY NewADDRESS AND PHONE NUMBER IS:

14058 ~~14000~~ Superior Rd. Apt. 8
Cleveland, Ohio, 44116
(216)-371-9304

Gary Coleman

20 October 1975

Hi, Hal

Last Wednesday I forgot to bring you a copy of enclosed 1-page blurb I cranked out re our Santa Barbara club's 1st meeting. So here it is. There are some people that wanted to be there that couldn't make it, such as Marshall Daly (consultant & programmer), 964 2968, PO Box 3013, SB 93105--a fellow-member of the Science & Engineering Council of SB, and (Dr.) Dave Noble, Noble Electronics, Carpinteria (very capable digital and analog electronics guy, but not a software type). Bus.: 873 Linden, fone 684 2410, home: 5488 8th, fone 684 2920. And Ben Lum, of Culler-Harrison, fone at work is 968 1064, home at 6162 Braeburn Dr, Goleta, fone 967 6070. And you know Jim McCord, who will co-edit the XXX-11 newsletter.

I have over 80 names on my prospect list, and many good sources haven't been tapped, such as Burroughs, and others only superficially, such as Raytheon.

I went on a tour of Delco this afternoon, sponsored by the Sci & Eng Council, as part of the Goleta Chamber of Commerce R & D week or something, and saw some of their compact military computers. One of our members, Sue Rudnicki, programs them and also Computer Automation Alpha 16's.

Saturday I drove Kevin McLoughlin, Dana Trout, Larry Kaempf & I to the SCCS meeting at UCLA in LA. The latter 2 have sent in deposits for the LSI-11 group purchase, and Dana may, after seeing Bob Dolan's, which hasn't arrived as of Saturday. He was to get the 1st one off the Puerto Rico assembly line (its predecessors being sort of hand-made pre-production prototypes, I guess).

So far only 12 people had sent in their deposits for the LSI-11. They will wait until they get 50 before placing the order, regardless of what purchase-option people mark on those forms.

We also went to Bernie's, an electronic surplus place on Plummer, E. of de Soto, in the San Fernando Valley. Dana & Larry bought 3 power supplies like I paid Grant Runyan $25 for, but they paid $8. each. This was a 1-day sale. Saw a Typagraph (reconditioned, they said) for $700. (This is a modified ASR-33, that has a different type-cylinder, 90 characters/line, can line feed in tiny increments in either direction, and also move the type-cylinder in tiny increments left or right, all for plotting. I once (1970) tried to get a distributorship for them. They're in a nice heavy wooden enclosure, very quiet. .....Also saw some Tally 100 LPM, 5 x 7 matrix line printers for $600. Lots of other stuff.

Don Tarbell spoke at the meeting on cassette interfaces and methods of digital recording on audio tape cassette recorders. (He offers a cassette interface board for Altair 8800's for $100, you know). He says he's used his system for 4 years with great success.

Did you know that Schafer Electronics has a computer which was designed by them, and was originally intended for sale? An 8-bit machine. See Brion Johnson & Glenn McComb for information about it. I wonder how many one-only machines there are? Of course, in the early days, that was the only kind that anyone had--no two alike.

The enclosed "Datafile" was in response to a request that I prepare a list of attendees to be handed out at the next meeting (Tue 4 Nov), but I didn't want to waste all that blank space on the paper. On the other hand, I don't want to inherit a chore like yours. Besides, there must be a limit to how many newsletters we really need.

I'd like to be able to attend club meetings that offered a variety of things: Information exchange on microcomputer projects etc., which seems to be the main thing in most clubs, but also lectures by experts on things such as various commercial machines, including maxi's that we can't hope to buy or play with, such as the Cray 1 with its 12 nanosecond cycle time,,,computer architecture, languages, history.....

Nuf for now.

Doug Penrod
1445 La Cima Road
Santa Barbara, California, 93101 962 3337

Doug Penrod

Hi again: Doug Penrod

OCTOBER 1975 — DATAFILE — Volume 1 Number 0

The first meeting of the un-named club of computer hobbyists of the Santa Barbara area was held Wednesday evening at 7:30, 1975 October 8 at the Goleta Library, 500 North Fairview. Attendees ranged from professionals to those with a keen interest but no knowledge so far. Equipment ranged from abacus and slide rule to a Data General Eclipse system. Most expressed an interest in owning a machine of their own, from programmable calculator through microcomputer to minicomputer. Most felt that the most valuable feature of meetings is the "random access" period, during which members mill about and compare notes on their projects and problems, and examine hardware brought for display and consultation. At the first meeting was an HP-65 (Ralph Boland), an MITS Altair 8800 (Doug Penrod), a MITS Scientific Calculator (Doug Penrod), a home-brew microcomputer built around an Intel 8008 microprocessor chip (Larry Plate), and a "TV-Typewriter" (Grant Runyan). Brion Johnson gave a lecture on microprocessors and computer principles for beginners, during the random access period. ... Everyone that is interested in any aspect of computing/calculating is encouranged to join us at the next meeting: TUESDAY 1975 NOVEMBER 4, same place & time. If you like mathematical games and puzzles, computer history, want to learn how computers work, want to build a computer or calculator, want to learn programming- - - -any aspect of Software or Hardware- - - -this is the place to meet the people you want to talk to. In addition to informal exchange of information, help, and goodies, we expect to have talks and demonstrations by experts on occasion. We also offer advice on publications and books. (And will those who borrowed Doug Penrod's "Interface", "The Computer Hobbyist", "Micro-8 Computer User Group Newsletter", "ACS Newsletter", and "People's Computer Company" please return them!)

Present were:

Ralph Boland	131 Santa Ana Place	Santa Barbara CA	93111	805 967 1771
Denny Bollay	240 Las Alturas	Sb		963 5960
Andy Chapman	22729 Ironbark Drive	Diamond Bar CA	91765	714 956 7183
Don Cyr	800 Palermo Drive	SB	93105	805 687 6079
Bob Dolan	800A Miramonte Drive (work)	SB		965 3011
Tom Fuller	Box 13727	SB	93107	964 8217
Bill Georgiov	Francisco Torres # 731			685 2079
John Grove	282 Carlo Drive	Goleta		964 6527
Doug Hogg	2516 Castillo	SB	93105	687 9668
Jim Holmes	627? Parkhurst			967 6725
Bill Johnson	559 Chadwick Way			964 2944
Brion Johnson	1423 Alta Vista Road	SB		966 1346
Murray S. Judy	2575 N. Tiller Avenue	Port Hueneme CA		985 1982
Larry Kaempf	342 Ravenscroft Drive	Goleta		964 2203
Glenn A. McComb	210 Barranca			965 4306
Ralph McElroy	Box 507	Goleta		968 7404
Kevin McLoughlin	1033 Newton Road	SB		965 8344
Danny McNiel	1343 La Manida	Carpinteria		684 3777
Russell McNiel	1343 La Manida	Carpinteria		684 3777
Roy Moline	155 A San Angeleo Avenue			964 1339
Douglas L. Penrod	1445 La Cima Road	Santa Barbara	93101	962 3337
John Pickens	206 Ravenscroft			964 7981
Greg Pickles	766 Cypress Walk E	Goleta		963 0356
Lawrence L. Plate, Jr	2320 Skyline Way	SB		965 1466
Sue Rudnicki	312 Elwood Beach Drive	Goleta		968 1741
Grant Runyan	1146 Nirvana Road	SB	93101	962 7734
Barry Smith	235 Pacific Oaks # 205			968 0327
Eric Smith	529 Chadwick Way			967 9804
Gerry Stapleton	967 St. Mary's Lane	SB	93111	964 2739
Steven Tepper	Box 14330, UCSB	SB (alt fone 961	3888)	961 3996
Dana Trout	52 Mendocino	Goleta		968 7870
Mike Wilk	4384 Via Fresada	SB	93110	967 3045

GREAT NORTHERN COMPUTERS LIMITED

GNC KITS
BOX 114
GODERICH, ONT.
CANADA N7A 3Y5

October 15, 1975

MICRO-8 COMPUTER USER GROUP NEWSLETTER...etc

Dear Hal & John:

First, a comment on continuing the Newsletter...DO IT, PLEASE!!! There sure is a need for what you fellows are doing. First, it is a high speed way for news to get out to the hobby, and second, it provides a biased, but uncommercial comment on suppliers, techniques and standards.

The main reason for this letter is to tell your readers that the crew who did the original work on the MOD-8 at M.I.L. are alive and still in the microcomputer business in Canada. Theygo by the name of Great Northern Computers Ltd. They are supplying computers and software and system design on a commercial basis, using (at this time) an updated version of the original MOD-8. They have been prevailed upon to come up with their unit in kit form in various versions. The basic unit with 1K of RAM will cost about $450 (Can or US $), delivered in either country. When you consider the fact that Canadians have to pay 17½% duty + 12% Federal Sales Tax on everything coming into Canada, this seems a good deal for the Canadians, at least.

But because GNC usually delivers its units built-up and tested, the documentation for the kits has not been proven out by builders who haven't done it before. So, we need some help. We need some people who want to get a system going at a low cost...and are competent to help. We will want each of them to build a kit and to fill in any gaps which they think is in the documentation.(and to find any errors) To the hobbyists who are selected we will supply a kit of parts complete with two sets of our documentation (one to be corrected and sent back) for $295. This kit will have 2K of RAM and enough ROM to allow loading of programs from paper tape. There will be a paper tape of the updated Monitor-8 program, and a power transformer so that the builder can make up a P.S. This kit will sell for about $500.

We figure it will take about 15 kits to take care of this program. We want to make one thing clear - these kits will NOT be sent out on a first come, first served basis. We will judge on the basis of the letters we receive who can best help us. This doesn't mean that you have to be an electronics expert to apply, but you do have to have some savvy about the game. The kind of info we will need to judge is a little of your background, what kind of I/O's you have or can get, what test equipment you have or can get, and anything else that might persuade us.

Send the letters to me at the above address.(don't send any money) All letters will be acknowledged, and we will advise the Micro-8 Newsletter who got the kits.

Fred J. Looker

P.S. This offer is only going to the Micro-8 NL. F.L.

C.G. de Groot
Info Svce of So Africa
655 Madison Avenue
New York, NY 10021

New York, 22 August 1975.

I have been a subscriber to the Micro-8 Newsletter since last November, ever since I started toying with the idea to start building my own computer. When the prices of the 8008 came down to under $30, I finally went ahead. I decided for a wire wrap version and I finished it last sunday, but it does not work, and I don't know what is wrong with it.

My computer is basically the Mark-8 with the Sudding modifications. With the 8008 in place, the low address counter returns to 377 a few moments after I entered a number. The time varies each time it does so. When I remove IC3 from the input multiplexer, the low address counter automatically goes to whatever is on the "switchregister" without loading Low. I have switched all my 74123s and 74193s (on the address board) around, but that does not seem to work. The computer also loads 377s, no matter what is on the switch register.

However, when the 8008 is removed, I can load whatever I want into the memory and the Low Address Counter does work perfectly. I am telling you all this in the hope that maybe you have heard of such a problem and can help me immediately, otherwise I have to wait for the manual to start a systematic search.

I am interested in the Martin Research Book. Do you know by any change if this publication is available on a short term loan from anybody?

I am sorry that I have not been able to contribute to the newsletter, but my interest in electronics is fairly recent and I have not been able to gather too much knowledge yet. But when I have a brain storm, I will let you know. I am at least considering to build my own plotter and maybe a typewriter. The Xerox 800 Electronic typewriter uses a Diablo print mechanism with a print-wheel, which is much simpler than the IBM print-ball. I am very certain that building a type writer around the Diablo mechanism should be feasable and the hard copy obtained thus is much nicer than from a Teletypewriter. In any case, I will let you know when I have something more definite to contribute.

Could you let us know through the NL for instance whatever happened to the Joe Cimmino survey. I was waiting for the updated roster so I could contact fellow computer builders in NYC if any, but have not seen anything sofar.

Very truly yours,

Kees de Groot

LOOMIS LABORATORIES
Consulting Electronic Engineering & Related Services

TELEPHONE, 601- 798-5884
LOCATED 10 MILES EAST OF MACON, MISS.
ON HWY. 14
POSTAL ADDRESS; ROUTE 1- BOX 131- A
PRAIRIE POINT, MISS. 39353

26 August, 1975
Page 1 of 3

ATTENTION: Hal Singer & John Craig

Cabrillo Computer Center
4350 Constellation Road
Lompoc, California 93 436

Dear Friends;

In refference to your question in the recent newletter 9 concerning the future direction of the newsletter effort:

I have been in contact with Carl Helmers of the new Byte magazine, and have big hopes for this publication. It is the first ametuer publication devoted to this field with the sophistication and steam behind it necessary to provide the communications that will pace its future growth. Greens record with 73 magazine speaks for itself, and I anticipate effecient and responsive management of this publication. Carl himself is building his second homebrew system (a 6800), and so is familiar with our ambitions and trials. The only thing that bothers me about Carl is that he is evidently familiar with large machines, and has wielded large amounts of memory and used several of the lavish (memory and machine-wise) programing languages that are in vogue presently with the large machines.

It seems to me that the publication of the newsletter is quite a burden to you and John, and for many of the other amatuer efforts whose humble papers I have enjoyed. What bothers me is that, I wonder how long your efforts can continue, and how much us lucky recipients can continue to harvest, until you decide to get out from under the pile of paper and publishing scheduals, and return to your first objective, playing with your Mark 8, etc. (Or have I misjudged your goals?) Therefore, if you would like to shed some of this responsibility, as I suspect, I would heartily reccommend the incorporation of the Mark-8 news-letter into Byte magazine, and I suspect that Carl Helmers will recieve you with open arms. If, however, you are inclined to make a career or a big project out of this, you have an excellent start, and I want to be on the front row.

It appears that Carl will publish a few of the displays and the waveform photo's that I recently forwarded him on the Digital Display Unit.

I am personally opposed to the use of extensive programing languages and large amounts of memory, particularly in the amatuer effort toward home computing. One reason is that I feel the 'Big Boys' and the 'Pro-Programmers" have overrun themselves in this area, with the end results not justifying the hardware inbetween (the simplicity of programing vs. the memory required to impliment it, and the wasted machine time). (As an example, I have seen several instances where statistical data reductions were being run on large machines, when the same results could be run very efficiently on a scientific calculator, at much lower cost. I know this is a very controversial area, but I blame the programming and the programing techniques, not the machine.) Another reason is that I am afraid this approach will exclude many of the 'little guys', who will probably never spend much more that $400-500., but may contribute much to the 'microcomputer' art. Afterall, what is our objective? Is it to reproduce the 'big machines' in total, or to see what we can do with a very modest machine (home made) and a new simplicity in software?

Along the lines of a common formatt for amatuer computer enthusiasts; I believe the exchange of software programs to be an essential element for the efficient growth of this new hobby. The tremendous variety of systems, interfaces, and periphials seems to anull any efforts in this direction, and I believe the propblem is going to get worse. I believe the solution lies in the formation of a new language which would not be like the existing languages at all, but would rather be an Instruction Code Conversion Language rather than a programing assistant. If I ever get started on this effort, I'll probably work with Byte magazine on it. In the meantime, if the idea activates anyones thinking process or ambitions, please feel free to proceed!

If we collect all the basic CPU instructions employed by the variety of microprocessors available, add some of those common to larger systems, and leave room for some new ones that are sure to come along; 300 instructions should easily cover the field. Now add an additional 100 slots for the various periphials such as X-Y CRT, serial ASCII printer, serial BAUDOT printer, ASCII keyboard, DVM, etc. Besides raw data in the form of binary numbers, this is all the programer has got to work with. If our 'universal' programs were written in this format, with a designating sign to identify data and instructions, each individual could equip his system with a (8 x 400 = 3200 ≅ 4K) translating PROM that converts the Universal Instruction Code to the machime code and available input/output devices unique to his system. This system would require very little memory to operate (less than 100 bytes) in addition to the 4K PROM, except in the instance where a gross conversion might be required, as in the substitution of certain output devices (such as BAUDOT for ASCII printer, etc.)

Obviously , it will be quite a job to develop such a system, yet someone must do it sooner or latter. I am sending a copy of this to BYTE. Either of you may publish any part of this, or re-edit/write it to fit your own ideas.

Sincerely yours,

Sumner S. Loomis

Sumner S. Loomis

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28 Sept. 1975

Dear Folks;

Those wishing to work toward a synthesis of RTTY and networks of amateur or community-serive computers may want to contact Eric Dollard, 1360 Howard St., San Francisco CA 94103.

In conjunction with Resource One, Inc., a non-profit educational and charitable corporation, Eric has been assembling the pieces for a monster multiple-channel long haul HF data communications system. Components, including a 10 kw transmitter with multiple independent-sideband modulators, have come from RCA's dismantling of their overseas HF station at Point Reyes, California.

Eric has been asembling and acquiring this equipment without a definite goal in mind, pretty much because it seemed a shame to let the equipment go to waste. He has, however, no shortage of general goals, which might best be summarized as the creation of a multi-mode data communication common carrier operating in a non-profit environment. Licensing and regulation don't bother him yet — Eric is working from the bottom up.

After more than a year of work, Eric has reached the point where he needs help from others, or the whole thing will go down the drain. He needs people who can help in the development of the concept, take charge of equipment and set up sites well away from San Francisco, work with local computer amateurs in developing applications, etc.

Interested persons can write to Eric at the above address or can leave a message at (415) 864-8663. Help is needed now.

Lee Felsenstein
1807 Delaware St.
Berkeley CA 94703

ELECTRONIC CONTROL TECHNOLOGY
Post Office Box 6
Union, N.J. 07083
September 19, 1975

We have recently started a company called ELECTRONIC CONTROL TECHNOLOGY. The aim of this company is to provide the hobbyist with kits using industrial quality circuit boards as well as industrial quality components and at prices competitive with the hobbyist market.

Three projects for the ALTAIR 8800 users are presently in development and should be available soon. One project is an 8K memory board which will plug directly into the ALTAIR 8800. This should be available by early December.

Another project is an octal encoder for the ALTAIR 8800 which does not require software. Also it does not require a separate I/O board. The circuit will be on a single sided board which mounts inside the ALTAIR 8800 case and is hard wired in. The keyboard and display are separate. This should be available in late October or early November.

The third project is a TV typewriter circuit (video terminal) which plugs directly into the ALTAIR 8800. The memory will be shared between the computer and the terminal to make games or displays easily possible. The format will probably be sixteen lines of 64 characters. The availability of this circuit is not being forecast at this time.

Future circuits will not be limited to the ALTAIR 8800. We invite comments and/or recommendations for the future projects. To receive literature, availability and pricing information, as soon as it is available, or to recommend projects, write a note to me at the address below and indicate what equipment you have or intend to purchase.

Very truly yours,

Dennis P. Dupre'

Dennis P. Dupre'

ELECTRONIC CONTROL TECHNOLOGY
Post Office Box 6
Union, N. J. 07083

24 August 1975

Hal Singer
John T. Craig
Cabrillo Computer Center

AN OPEN LETTER TO MICRO-8 NEWSLETTER READERS

I really don't know how to approach this, so I guess I'll just start putting it down as it comes to mind.

Perhaps I'm just naive, but I don't understand people who make judgemental statements about systems and/or procedures without first getting involved in whatever it is they are judging. Yesterday I received all of the MICRO-8 back issues, a volume impossible to digest in a short period of time. The first pass through was a quick scan (lasting into the wee hours), stopping on key items which I'm tuned in to. Besides the good stuff, I kept hanging-up on phrases like (and this is from memory) "not worth the paper it's printed on", "toy jobbie", "a weird i/o arrangement","obviously won't be able to deliver", "using a second grade cpu chip", ad nauseaum...

I've been in computing for over 10 years. I started as a computer operator for Lockheed Missiles & Space Co. and I am presently a Senior Systems Analyst (whatever that is) for Tymeshare, Inc. (a major international tymsharing corporation). I design and implement operating system enhancements for IBM 370's. I have had no formal training in hardware, so the way look at it is; my profession is software and my hobby is hardware. Putting together digital logic is not much different than programing anyway. I have been involved in the evaluation and purchasing of numerous small, medium, and large scale computers and peripherals. Granted, these can be considered industrial purchases, but the companies are still manufacturing companies. How many of you out there have bought a new computer (DEC, DG, IBM, or whatever) "off the shelf"? Very few if any, I'm sure! Lead time is usually in months (expressed in days... 90days, 120days, etc.; IBM's lead time is frequently expressed in years: 18mo., 21mo., etc.). Now what's the gripe about MITS? I ordered an ALTAIR in January and received it in March. That's 60 days. Last year (spring 1974) I waited 5 months for a $35 Heathkit so don't give me any baloney about MITS being in a different market place than the big guys. A company (an entity endevouring to make a profit for the stockholders), is a company, is a company! They all have the same problems, raw material supply, qualified help, order quantity, etc. I personally think that MITS has done a hellova job getting a "real" computer to the masses, at an unbelievable price as quickly as they did.

My ALTAIR is serial no. 220160 (I suppose that means no. 160). It arrived in March, 20hrs later it was assembled but not working. 30min later, with only a voltmeter I found four plated through holes that were drilled out (front panel power), soldering on both sides of these wires solved the problem. My ALTAIR was running, as it still is, with zero problems. Everything works as advertized. I called MITS (Pam Hollman) about when the additional items (I ordered two 88PPCB's) would be delivered and she quoted real time - in months. They were delivered as per her quote. Can anybody ask for more?

Now I have a running computer that I can't do much with because of the unavailability of parts - but I do understand why - and I got an honest answer. What I can't understand, though, is why I have several cases of canning jars that I can't get lids for... and I know the jar lid co. has been around for a hundred years! To make my ALTAIR useful in March, I decided to live up to my title "homebrew computer freak" and homebrew-up some hardware. Which brings me to the next point...

That computer with "toy" boards and "weird i/o" just might be one of the best 8008 kits around. Look closely at the boards and you'll see very well laid-out and designed boards with plated contacts (good pictures in Sept. BYTE). I really don't know much about the 008A as a processor - seems to me it would be as good as any 8008 based system - but I know that the boards, the bus, and the power supply are all first rate designs. I know because that's how I solved my "what to do with a running ALTAIR in March" problem. The 72 bit wide bus (like the 100 bit wide ALTAIR bus) has room for everything including the kitchen sink. It's hard for me to believe that hobbyists are still buying non bus oriented computers, but, to each his own I guess.

It was a trivial job to mount the RGS backplane in my ALTAIR and wirewrap between the two busses. I've been running my ALTAIR with RGS 008A memory boards since March with no, repeat, NO problems.

Let's talk about that "weird i/o" with "no place to mount the connector". My scan through the nine NL's left my mind boggled with plea's and cry's for more 8008 i/o capability, not to mention the numerous methods printed therein. Wouldn't you say 256 i/o ports is better than 8 - plus the added convienience of input, output AND control for each port. I just can't believe some people!

WEIRD??? You should call it a God-send.

The RGS parallel i/o concept works so well, I built an interface board for my ALTAIR so I can use RGS 008A i/o boards (and of course devices if I wish). I've had full i/o capability on my ALTAIR since April. Actually more than full because of the added control function. Parallel i/o busses certainly aren't new - that's exactly how channels on IBM computers talk to devices. Oh yeah... a place to mount the RGS parallel i/o device board (I seem to remember that complaint), and to quote the RGS 008A manual (i/o supplement) "this card is designed to plug directly into the 008A computer backplane". The board has 24 holes for running ribbon cable (or whatever) via the holes or 24 pin dip socket, to the device. Pretty simple. Very well thought out. My ALTAIR now has 252 basic i/o ports and 1 channel. The channel will support 256 ports.

You know - with a full RGS 008A bus running in my ALTAIR, if I put in the 008A cpu boards, I'll have both cpu's (ALTAIR & 008A) running from the same memory, and access to the same subset of i/o devices (the parallel i/o bus). All kinds of dual processing ideas come to mind. RGS Electronics told me that they are working (feverishly) on 8080 and 6800 cpu boards for the 008A. Seems to me this means you people with 008A's needn't buy a whole new computer to upgrade to a faster cpu. It also makes my dual processor concept easily upgradeable. Also, RGS is about to offer a prom board for the 008A.

I too have a SWTP cheap keyboard, which was supplied with some bad parts. A phone call got me the correct parts within about 10 days.

By now everyone must know that MITS is coming out with a M6800 based computer. San Francisco area MITS rep said with front panel, pc board (rumor says one large flat board, flat meaning horizontal behind the front panel), and power supply for around $300 - and available in October. A movement is in progress to set standards by a group called Hobbyist Computer Manufacturers Association (Processor Technology, Godbout Electronics, RGS, Solid State Music, and a few others). If you have any opinions, you might let them know what they are. I got these two items from the Homebrew Computer Club Newsletter.

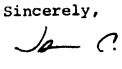
Back to 8080's & 6800's, rumors have a habit of playing one cpu over the other. I suggest anybody interested in benchmarking microprocessors, read the three part article in Electronic Design News about benchmarking micro's. They do come to some conclusions about the 8080, 6800, 2650, and others. The series is EDN April 20, May 20, & June 20.

I have some Processor Technology boards in my ALTAIR. They are absolutely superb. I also have some Solid State Music Universal / i/o Boards, containing a parallel i/p and output port, address decoding, three power supply regulator mounting positions, and the following uncommitted IC mounting positions.: 34, 16 pin; 6, 14 pin; and 2, 8 pin plus disc and electolytic capacitor mounting slots. Actually anything from 4 or 6 pin up to 40 pin devices or sockets can be mounted. Power and ground is available at each position. Very nice boards.

Guess that's all for now,

thanks for a winning publication,

Sincerely,



Jim Brick
820 Sweetbay Dr.
Sunnyvale, CA 94086

PS: It's possible that my late-nite scan misinterpreted some of the attitudes. If so, I apologize, but it doesn't change the facts... My ALTAIR is a fine machine. The BRAND-X add-on's perform flawlessly. I have NO complaints. As I said before, maybe I'm just naive...

LTC F. H. Faulkner
58 Offutt Road
Bedford, Ma 01730

MICRO-8 Computer User Group
Cabrillo Computer Center
4350 Constellation Road
Lompoc, Ca 93436

24 Aug 75

Dear Hal,

Attached is a contribution for the next issue, or whenever you need a filler.

Please send 11-page MIL cassette interface package (20¢ SASE enclosed).

It's not clear whether I qualify for more than one package of information for my entry. If so, please also send the 7-page Trent booklet (20¢ SASE enclosed) and Terry Ritter's exec package (20¢ SASE enclosed).

Please also send a copy of the Precision Systems power supply schematic by Dave Chapman (SASE + 30¢) and Joe Cimmino's MNH modem to cassette wiring diagram (SASE + 20¢)

PROJECT STATUS: I finished the TV Typewriter and it doesn't work. It gives a pattern of spots, but nothing resembling an @ symbol.

I finished my Mark-8 and it doesn't work. I made all of my own PC boards (first mistake), used Molex pins for sockets on the double-sided boards (mistake two), designed my own double-sided-with-single-sided-IC-connections memory board (# three), designed my own tri-state 8-port input bus board (four), mixed up all my ICs so I can't tell who sent me the bad ones (5), and tried to incorporate every other modification mentioned anywhere (?).

I debugged the Mark-8 long enough to find one bad IC, then put it all away for a couple of months and started reading.

I will attempt some further debugging before I scrap it all and go to wire-wrap. All further work will be done with wire-wrap when I don't use someone else's PC boards. I'm waiting for the next issue to look at Tom Boyko's version.

My next stab will probably be somewhere between Mark-8 with Digital Group mods, MIL Mod-8 and Boyko - or maybe Bill Godbout's entry, when it becomes known.

I'm not discouraged, but I'd sure like to get back in the game.

Sincerely,

HAL FAULKNER

CODE YOUR TRANSMITTED DATA by Hal Faulkner

Sooner or later many byters will want to transmit sensitive programs and data using some kind of code. The US Mail system is fairly secure, but RTTY and telephone are wide open. Commercial devices are available if you have the cash - which I don't. Following are two easy and inexpensive methods of coding your data:

One way to confuse the enemy is to arbitrarily mix up the data lines entering the output device (UART, for example). The data then gets transmitted serially in the garbled order, except the parity bit, which is automatically computed after input to the UART. At the other end, the data is ungarbled after leaving the input device. The cost can be as low as the cost of solder and heat, or as high as seven single-pole seven-throw switches. As a good cheap compromise we can use a 14 pin IC socket and seven little jumper wires. Using the full 7 bit ASCII code, there are 7 factorial equals 5040 ways of doing it. I've seen this technique used in some otherwise expensive equipment. See Fig 1a for an example.

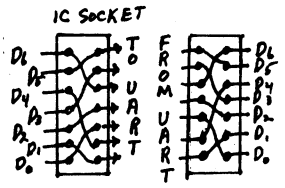


Fig 1a

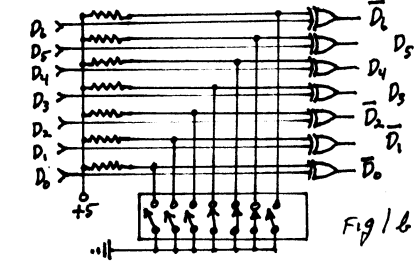


Fig 1b

A second way to code the data is to invert part of the data according to some arbitrary code. This can easily be done by exclusive ORing a code byte with the data. Example:

Let's say the data is:	1 0 1 0 1 0 1 Data
Let's say the code for the day is:	1 1 1 0 0 0 1 Code
Exclusive ORing them, we get:	0 1 0 0 1 0 0 Coded Data

At the receiving end, we run it through the same process using the same code (which we thoughtfully sent the user by mail).

Coded Data	0 1 0 0 1 0 0	There are 2^7 equals 128 combinations using this technique.
Code	1 1 1 0 0 0 1	
Data	1 0 1 0 1 0 1	Viola!

The easiest way to implement this method is by adding an Exclusive OR Immediate instruction to the program just ahead of the output instruction. The receiver will put the same instruction right after the input instruction, or after retrieval from memory later if input time is critical.

The idea can also be implemented by hardware - a couple of exclusive OR gate ICs (7486), seven single-pole, single-throw switches and pullup resistors. The SPST switches and resistors could be replaced by SPDT switches, but the $1.50 SPST DIP switches sold by B. Godbout need a home. One of these will satisfy the 'switches' requirement. See Fig 1b.

A combination of the above two coding schemes will give you 2^7 times 7 factorial equals 645,120 possible combinations. That should be enough to discourage almost everyone, even if they know the techniques we are using. Don't send anything you don't want known by the professionals. They can have it decoded before the last radio wave stops twittering. FHF

2309 Hazel Ave.
Dayton, OH 45420
(513) 254-2766

September 20, 1975

Dear Hal and John:

I have a Ph.D. degree in electrical engineering and my avocation is also my vocation. While with a previous employer I became involved in minicomputer data acquisition, analysis, and control systems (hardware and software). At that time I became interested in microprocessors. Work for my present employer allows me to design systems around the 8080. I also consult(on the side) in the minicomputer and microprocessor system design area. For my personal use I have purchased a Sphere II system. I chose the 6800 after surveying the capabilities of all the available 8-bit processors.

My time is also spread thin by teaching and by being active in the local IEEE Section. I subscribe to and faithfully read the NL, the TCH, the Digital Group NL, BYTE, Creative Computing (CC), Popular Electronics (PE), Radio-Electronics (RE), and numerous technical and trade journals. Therefore, I seem to have limited time, but I felt that I must write this letter.

First, with respect to your question: "What after NL #12?" It is my belief that the NL performs a needed and vital sounding board for computer hobbiests. No other publication performs the service that you provide and it would be a great disservice to the "community" if you were to throw in the towel. I hope that you decide to continue even at increased subscription charges.

Second, with respect to the cassette interface standard, PE and Jerry Ogdin have confused things further (their design is based on minimal hardware and maximum software). My preference is the TCH design, although it requires about 20 IC packs it appears to be well engineered, i.e. characterization of the communication channel, hardware/software tradeoffs, etc.

Third, I hope to let you know about my experiences with construction of the Sphere system. On the Altair 8800 construction, there is a very interesting one page editorial, M. Himmelfarb, "The Makings of a Mini," Digital Design, 9/75, p. 80, describing the problems he encountered.

Forth, my wife and I and a group of other people have just established a cooperative Montessori-type nursery school. I noticed recently in CC that there is a computer language, PILOT, used successfully in such an environment. Can you or anyone get me some information on this language or point me to someone who can. I might like to adapt this language to my 6800 for my own kids.

Fifth, I am also interested in computer games. I have DEC's 101 BASIC Games and am considering the purchase of PCC's What to do After You Hit Return. Are there other sources?

Sixth, if anyone is interested in algorithms for multiplication, division, fixed point, floating point, transcendental functions (e.g. exp(x), Ln(x), sin(x), etc.), etc., I might suggest some books:

1. Y. Chu, Digital Computer Design Fundamentals, McGraw-Hill, 1962.

2. D.E. Knuth, Art of Computer Programming, Addison-Wesley
   a. Vol. 1: Fundamental Algorithms, 2nd Ed., 1974.
   b. Vol. 2: Seminumerical Algorithms, 1969.
   c. Vol. 3: Sorting and Searching, 1973.

3. H. Schmid, Decimal Computation, John Wiley, 1974.

All, especially #2, are a little heavy for the novice. #1 and #3 are also hardware oriented.

Finally, I would like to get a local computer hobbiest group organized here in the Dayton area; but, as I previously expressed, I am almost saturated now. However, I believe that if I do not do something it will not get done, so I would like to test the local interest. Therefore, if anyone interested in forming a local group would send me a postcard with their name, address, phone number, and their basic interests, I would be happy to test the lay of the land and get the ball rolling. My request for postcards instead of telephone calls is because I have two children under the age of three who need their sleep and because my time is fairly well committed. I will report to the NL on the results and will announce and set up a first meeting if the results warrant.

Well, I guess that is it for now.

Yours truly,

Charles E. Burton, Ph.D.

A. W. Walker
6000 N. 27th St
Arlington, VA 22207

16 July 1975

Dear Hal & Ed,

Just received the #8 issue of the NL, and noted your interest in Dura Mach 10's after picking up one from Hal Novick. As I've had several years experience with these things from the electronics hobbyist/computer nut point of view, I thought I'd take the opportunity to send copies of some information I've acquired on them over the years.

I presently have two Mach 10's, one with an outboard Edit Control Box, which provides Character/Word/Sentence/Line/Paragraph editing and margin control similar to the IBM MTST or MCST, though using paper tape, which isn't overly convenient for large volumes of typing. However, I originally purchased the Dura's for connecting to other unit-record type ADP gear I have, and have since purchased a minicomputer, to which I've not yet completed the interface. However, interfacing between the Dura and other external devices is not difficult, be they micros, or whatever. Depending on the Dura, some will have an "Edit Control", "Aux" or "Aux. Reader" plug on the back which provides the necessary signals.

Enclosed I am sending copies of the following, feel free to distribute to anyone who wants them (Dura and Ice having been out of business for several years):

Schematic of basic Mach 10 w/ Reader, Punch & Punch Control
Maintenance Manual for Dura additions to basic typewriter
Typewriter Adjustments Manual

Please note, that the schematic is only representative, as many Mach 10 models exist, and various types of reader/punch control are encountered, some with different codes for the control functions (ie Punch On/Off, Reader On/Off, Print Supress/Restore, Etc). This schmetic is not for the machines that accept the Edit Control Box....I wish I had one! ~~If anyone is interested,~~ Also note that the Dura comes in both a relay and a more recent IC logic model. Sorry, no info on latter.

If anyone needs them, I also have, but haven't sent:

Schematic of Edit Control Box (but not for modified Dura)
Dura Illustrated Parts Breakdown for Parts added by Dura
(this is useless, unless you know someone with a stockpile of Dura parts by their old stock nos.)

I have a limited supply of scrounged Dura mechanical and electrical parts, inc. a few extra readers, punches and an Edit Ctl Box....all obtained from scrapped machines with no Selectric parts (they kept the typewriter parts)!

For additional info on the typing mech., order the following from your local IBM office as needed:

Selectric Parts Catalog/Illustrated Parts Breakdown
Form No. 241-5102
Selectric Parts Cat/Price List Form No. 241-5103
(MUST have both of above to order parts from IBM)
Type Catalog FormsNo. 241-5687
or shorter Typehead sales brochure No. G542-0053

Typeballs cost $18 each from IBM, and come in endless variations. MOST Mach 10's I've encountered use the "Correspondence" (normal typewriter) variety, but they were also made in the "BCD" code for compatibility without requiring conversion logic when on computers using the EBCDIC code. The assignment of characters to tilt-rotate positions on the typehead is entirely different between the two.

The Dura p.t. readers are designed for opaque paper tape, I use black. A former Dura CE says the sensitivity can be set down to use more transmissive pt, but at impaired reliability, which he didn't reccommend.

If any of you get a Mach 10 wired for the Edit Control (has a 37 pin Cannon female on the rear) but with no edit box, the reader won't work unless either an Edit Control or a dummy plug is inserted. The dummy is simple:

connect pin 3 to 4
" " 5 to 6
" " 7 to 8

So much for the info on Mach 10's. If I can help anyone with questions, pass my address along. No guarantee on instant response, but will try to assist.

Would also like to suggest an outfit here locally that has some used or surplus gear that may be on interest. I have some of their equipment and have been well satisfied, and they're also willingtto give refunds on anything returned if you're unsatisfied. In particular, they have some used Friden Flexowriters and Teletype 5-level paper tape readers (TD's) and punches (Reperf's) at reasonable prices. The Flexx's are similar to the Mach 10's in concept, but based on more conventional typewriter (type-basket style). They use 6 channel paper tape, include a reader and punch on the typewriter and use a code that's very similar to 5-channel Baudot (the the alphabet is identical) but with both small and capital letters and more special characters. Prices are a lot cheaper than for Mach 10's. They publish a regular newsletter, and will add to their mailing list if you write:

Colonial Mailorder Services
13 E. Spring St.
Alexandria, VA 22301

Keep up the great work on the newsletter. I'm not presently building anything with micros, as I have my own mini (Interdata 74), but am actively experimenting withinterfaces and software, and find some of the hardware ideas in your NL interesting and useful.

Regards,

Allan W. Walker

Bob Wallace, designer

PO Box 5415, Seattle, Wa. 98105

New World Computer Services, Inc.

September 16, 1975

Gentlepeople,

Ideas about your newsletter: it seems there are three catagories of info currently:

1) Reviews and feedback about current kits, newsletters, and companies.

2) General letters about what people are doing

3) Technical info - programs and schematics

My most radical suggestion is to eliminate everything in topic 3. This sort of thing could go into Byte or one of the other magazines. People submitting them would get paid, more artwork / editorial support would be available, our new hobby's slick magazine can grow, and Hal and John would have less of a load putting out the newsletter. It is these articles which tend to be long and take more energy and time to include. Seems like everyone would benefit.

On the other hand, topic 1 is very important in this new and changing field; there will be more companies starting to offer more computer hobbyist gear, and objective, trustworthy information about who is delivering and who is not will be important and the volume of such info will expand (I realize I'm a fine one to talk, since Comindex is still not out, but it will be out or money refunded by the end of 1975).

Topic 2 - general letters - would be nice to keep, as there is a community built around the Micro-8 Newsletter and letters are a good way to keep this. In addition, for topics such as standardization and hobbyist organizations Micro-8 is an excellent forum. Another value for general letters to Micro-8 is for West Coast computer hobbyists to get together.

Footnote - we need a generic slang term for "amateur computer people" or "computer hobbyists", as "ham" applies to amateur radio people. I would suggest "marks", to immortalize the kit that started it all. A mark is also a slightly derogatory term used in the carny for people who come to see the carnival acts, "Bytter" has also been suggested. This is a good field for acronym designers, too !

Sincerely,

Bob

MICRO-8 COMPUTER USER GROUP NEWSLETTER 9/15/75
Micro-8 Computer User Group
Cabrillo Computer Center,
4350 Constellation Rd.,
Lompoc,
CA 93436

Gentlemen;

I received NL #10 on 9/13/75.

I am sending you an update on the Hewlett Packard HP-65 calculator item that was in NL #8. There are at least 800 new programs(in addition to the original 2000) in the new catalog supplement according to the Spring 1975(Vol. 1, No. 4) issue of HP-65 KEYNOTE. This is the latest issue of HP-65 KEYNOTE.

According to the Aug. 1975(Vol. 2, #1) issue of 65 NOTES, as of Aug. 28,1975, the U. S. Contributer's Library had 3450 programs and the European Users Library had 1100 programs. Also, according to the same source, there are three new PACS for a total of 14 PACS. Each PAC consists of about 30 to 40 program cards in the same field(Math., Statistics, etc.). I hope that somebody brings out an interface for the HP-65 and a computer. Just imagine the HP-65 connected up to an Altair 8800(which I am putting together at present)!

Does anyone know if the extra cost of chromium dioxide tape is worthwhile for data processing?

I hope you keep publishing the NL after #12.

Yours truly,
David W. Johnston

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

---

7 Johnson Place
Ardsley, New York 10502
July 15, 1975

Dear Hal & John,

Rather liked Johnathan Titus's input port expansion outlined in R.E. (Dec. 74) so decided to attempt a PC Board layout. Enclosed are the diagrams of the try; top side, bottom side and composite (composite didn't reproduce very well).

The first attempt was to place all 8 ports on one board but it became too jammed and too confusing and I gave up. The second attempt resulted into two boards of 4 inputs each, similar to the output boards. Each board utilizes 8 DM 8095 and 1 7442 and contains jumpers for input port designation. The boards are outputted in parallel to port 1 of the Input Mpx Board. Modifications have to be made to the Inp. Mpx Board as outlined in Mr. Titus's article.

Two problems now remain: 1. The layout should be double checked by someone for errors and 2. Find somebody that we can send the original Vellums so some double sided boards can be made.

Thanks for the great Newsletter.

Sincerely,

Robert A. Barber

New address; Gregory A. Walker
2503 Pearl, #6
Austin, Texas 78705
September 3, 1975
Phone: (512) 474-7965

This is the letter I have been planning to write all summer, but the work of getting my own microcomputer projects organized has always interfered. I will try to modularize it so that you can easily edit it as needed for the newsletter.

I am coming into the computer hobby from the software side. Having recently graduated with a degree in physics, I am now attending graduate school in computer science at the University of Texas at Austin. I hope to get a local Micro-8 User Group started soon and will keep you posted on developments in that direction. It seems to me that the university would provide a large number of interested people.

I ordered a TVT-II in December of 1974 and received it in February. I had a couple of problems with shorted switches in the SWTPC keyboard, but they were promptly replaced with no charge. I built most of the TVT-II in one weekend and tested it the next--it worked the first time I tried it!! Since then, I have installed it in a 17"x10"x5" aluminum chasis with an rf generator on the output and a 24-lead for the keyboard. All considered, the keyboard works just fine. The keys are a little "mushy" in that they do not have a solid stop when completely depressed. This effectively puts an end to all speed typing on the keyboard, but then I never use touch-typing on a computer--the one-finger peck is the most error-free way I know of entering data into a computer. The $40 price for the keyboard is stiff compared to some on the surplus market. I bought it because I knew it was directly compatible with the TVT-II. Now I would probably suggest that someone should shop on the surplus market for a better deal, but I have no plans whatsoever in getting rid of my SWTPC keyboard.

My present project is to add a combination UART and FSK modem board to the TVT-II. I am constructing it with point-to-point wiring on a Veripax board as sold for $5.25 from Solid State Sales in Sommerville, Massachusetts. It is the easiest and least expensive breadboard method for DIP's that I have found yet.

I finished the FSK portion of the circuit, but was interrupted by the necessity of moving everything to return to school. I am just getting a work space set up again. The FSK demodulator uses a 565 phase-lock loop and a 339 voltage comparator in the configuration shown in the Signetics Application manual. It is calibrated with a signal generator and a scope to detect the 2225 Hz mark and 2025 Hz space of standard FSK. The modulator uses two 555's set for a 1270 Hz mark and a 1070 Hz space. I have not been to test the arrangement at data rates yet.

The modem and the UART should fit onto a single 4.5"x6.5" board. If everything goes as planned on the completion of the UART, I will write up the entire system for the newsletter.

I have chosen the MIL MOD-8 as the system to build my microcomputer around. I received Bob Swartz's data package and was very pleased with it. I was hoping he would include a circuit for a direct-memory-access control panel, and I was disappointed that he decided to go with the MIL Monitor, wherever he found a ROM with it. I ordered a set of boards, sans the TTY board #8-2, from Space circuits in July. I received them exactly one month later and am very anxious to get work with them. The postage and handling charged by SC for 7 boards was $10.00, not $2.50 as reported by Swartz. That is in addition to the $8.34 required to grease the palm of the U.S. Customs Department. I have boards for 4K of RAM and 2K of PROM and feel the MOD-8 is still the most flexible way to go in building an 8008 based machine.

NOTE: I was with Lannie Walker (no relation) at the christening of his Martin MITE-2. I will not try to get the jump on his report, but I was not at all impressed with their 50-wire ribbon cable as a bus. It is all right for a packaged system, but it appears almost impossible to tinker with.

I will build the first phase of my MOD-8 in a surplus card cage with 10 of 44-pin edge connectors. I wired up the backplane for the CPU, buffer, and one memory board in about one hour. It is very straight-forward and every line is easily available.

I joined in on Jim Fry's latest memory order for 3K, which should be enough for a starting system.

SUPPLIERS:
I would like to plug in an ad for a company few people seem to have heard of:

Tri-Tek, Inc.
P.O.Box 14206
Phoenix, Arizona 85063

I have placed two orders with them over the summer and received each in two weeks or less. They are not too heavily into IC's, but they have switches, plugs, assorted resistors and capacitors, at prices that are hard to beat. Example, a 44-pin edge connector for $0.75 versus $3.00 from Mini-Micro-Mart. They send out a flyer every so often, and while they do not stock a standard selection of chips, there are a lot of interesting devices to be found in the flyer. Check them out.

I guess that is about all to report for now. I hope this has been at least moderately interesting and even useful. I will have more detailed information to report as some of my projects move from the experimental to the operational stage.

Yours,
Gregory A. Walker
Gregory A. Walker

Dear Hal and John,
I'd like to inform newsletter readers of an interesting development in the hobby computer field. Some of the newsletter readers may have seen an advertisement in RE by sphere of 96 E. 500 So, Bountiful, Utah 84010, they have sent me their advertising literature and its pretty impressive!
I've no axe to grind so I'll just repeat some of the most pertinent features.
1) based on Motorola's M6800 faniely
2) available in kit or assembled form
3) cost 421 dollars intro package till Sept 1, 650 dollars after
4) they say they now have 3 committed orders from Universities.
5) their basic unit includes (421 kit) 650 dollars after 9/1/75. CPU with 4k dynamic RAM, 1k of EPROM with assimbly langua e operating system, power supply, back plane, CRT(TVT type) display driver 32 char x 16 lines, interconnect cables, power cables, keyboard case is not included, the CPU is fully buffered, operating m nual, and get this they supply even with units incapable of supporting it a full basic language at no extra cost.
6) this BASIC is as complete as the one on my university's time sharing service.
it has files, matrices, strings, functions besides the usual.
7) Oh I forgot the basic memory board in the 421 dollar unit is complete with 4k of RAM but has space on it for up to 16k RAM.
8) interfaces are cheap by MITS standards and they aren't offering one in the sky, they've choosen to offer an OKIDATA line printer for example and a commercial floppy disc unit.
9) they promise 60 day delivery but in a phone conversation with them, they have said I could have a unit in hand on August!!(I'm temporarily a Johns Hopkins Medical School and may be ordering thru the auspices of the Bioengineering Dept.
10) I dont't yet no what their own manuals are like but the Motorola manuals and applications literature are superb - Intels material isn't worth a glance by comparison.
11) the sphere basic requires an additional 16k of memory cost 450 dollars which is reasonable since that is the board and memory.
12) Oh I forgot the sphere card size is 14"x8" with smaller sizes for smaller functional modules.

Part 2
As you may have gathered I have held off on buying an Altair system because of these disadvantages - peripheral cost
poor documentation available
hard to design around hardware
I hope I've found what I'm looking for in the sphere unit.

Part 3
Before I left Atlanta for the summer I got together with Jim Bunion in Atlanta to see his Altair 8800 - impressive but he had been waiting many months for memory, peripheral etc. - very disappointed with MITS marketing. We'd like for other computer hobby people in the Atlanta area to contact us. The format and layout of the newsletter is great for tinders
Please follow up on Don Lancaster's TVT 3 and 4 its always interesting to see what he's got in the works.

Part 4
Has anyone ordered from processor technology - the claim to have available Altair boards and say they will make available a free BASIC language?

Part 5
I'd like to know if anyone can make available to me a M6800 cross assembler of any type.
Thanks for listering to this rambling letter.

Gary Alevy
Emory University
Box 21393
Atlanta, Ga.
30322

Yours truly
Gary Alevy

Bob and Barb Juanillo, 35360 Fircrest, Newark, CA 94560 "In issue number 10 we note one of your contributors, Neil Benson, recommends Robert Heinlein's computer-oriented tales "The Moon Is A Harsh Mistress" and "Time Enough For Love". We couldn't agree more. Every computer buff should read them -- especially "The Moon Is A Harsh Mistress". Also may we add to the list Harlan Ellison's short classic "I Have No Mouth And I Must Scream" -- about the ultimate Computer. Curl up with one of these after a hard day of debugging. We haven't begun our own system as yet. We're taking a long look before we leap. We are, however, interested in microcomputer applications in solar energy and control -- I'll elaborate on that another time. Please include us on your list of active enthusiasts."

Ron Riley, Box 4310, Flint, MI 48504 has received all the necessary parts to convert his IBM Selectric No. 71 typewriter into a teletype and should have it done in a month or so. He will send detailed instructions ASAP. He has also received a set of TI SBP0400 4-bit slice cpu. It has 512 one microsec instructions and is by far the most powerful cpu set available at this time in his opinion.

Kenneth C. Hopper, 4021 S. Bowman Avenue, Indianapolis, IN 46227 wrote way back in July and asked that the following be printed since he couldn't afford a 'new' unit and there might be some disillusioned soul who wants to back out: "ALTAIR got you down? Sell me your used 8800 and recover some of your hard earned cash - get back into computing when the smoke clears. Call (317) 787-8661"

David W. Johnston, PO Box 3781, Washington, DC 20007 read about a six volume programmed self-teaching course on microcomputers put out by Iasis, Inc., Suite 154, 770 Welch Road, Palo Alto, CA 94304. The six volumes are Binary Arithmetic, The 4-bit Microcomputer, The 8-bit Microcomputer, Assemblers and Prototyping Systems, and 8-bit Assemblers and Compilers. It is priced at $124.50. David would like to know if anyone knows how good it is?

David Price, 3901 Victoria Lane, Midlothian, VA 23113 would like to be contacted if 1) you have a BASIC 8008 or 8080 running. 2) If you can get your hands on BASIC software for any machine. 3) If you have experience with DEC EDUsystems (5-50) or Educomp ETOS.

John Cochran, 820 Orwell Ave., Orlando, FL 32809 (new address) is in the process of constructing an 8080 based unit using a MITS cpu board, Solid State Music 4K memory and I/O. He presently has 12K or memory and wants another 8K if his wife can be managed. He will use an ASCII keyboard and a TVT-II output. What he wants now is a printer or TTY for about $50.

Micro-8 Contact List

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50312 KELLY, DENNIS H.
51443 ARNOLD, BILL
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55414 EUBANK, BILL
55420 BENSON, NEIL
55486 JOHNSON, ROGER
55432 COLSTROM, PERRY
55746 GORMAN, JACK A.
55811 PETERSON, MARK
55901 PALLANCH, JOHN
56031 MARTIN, JOHN
56082 PASCHKE, DENNIS
56233 SMITH, ALAN
56288 BERTILSON, SCOTT
56484 FOSTER, JOHN
56560 CORNER, C. R.
56716 CHRISTENSON, DAVID
57006 AAMOLD, DOUG
57006 CARLSON, STAN
57029 EPP, EDWARD C.
57105 WENSLAFF, WAYNE
57107 SANDAHL, GARY
57701 BATCHELDER, MICHAEL J.
57701 FISCHER, STEVE
58201 JOHNSON, R. I.

58201 HARRIS, TERRY G.
58704 TAYLOR, CHRISTOPHER
59538 MARTIN, DAN
59632 SIVERTS, GEORGE
59715 PATTYN, DAN

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60025 FREEMAN, WILLIAM H.
60025 GOETOVSKI, CHARLES R.
60030 MORDECAI, BRYAN G.
60035 SWARTZ, ROBERT
60044 NELLES, ALAN
60060 SCHAFER, W. MICHAEL
60060 SULLIVAN, JOHN T.
60068 BRENNAN, RICK
60068 BUCKLEY, R.
60076 KOOLISH, P. H.
60085 MICELI, THOMAS A.
60085 MOLENDY, GARY G.
60088 NAGY, EDWARD W.
60090 SMITH, ELWOOD P.
60093 BLANCHARD, WILLIAM B.
60093 DOUDS, CHARLES F.
60104 BOLD, PHILLIP C.
60115 MIDDLETON, PETER
60148 PRECHT, WILLIAM T.
60164 BUSSE, DAVID A.
60172 BARTH, OTTO
60172 KAUFMAN, J.
60181 CONTRI, ROBERT
60185 DAVIS, PAUL H.
60201 COLLINS, D. E.
60201 LENNON DR. WILLIAM
60201 NICE, H.
60302 NUNAMAKER, TOM
60302 PUTNAM, JOHN
60302 WEISS, P. S.
60305 CLARKE, NORMAN F.
60430 NOWAK, ANTHONY V.
60438 SCHIPPER, W. THOMAS
60439 HOSTETLER, THOMAS
60439 ORVOSH, WILLIAM T.
60441 LUBICK, RONALD
60451 MONTE, D.
60515 CONDIC, MARK A.
60481 TOMKO, KENDER
60525 ALLEN, HARRY E.
60534 DE GRAAF, EDWARD
60540 BYRNE, EDWARD R.
60540 COOK, ROBERT W.
60540 KLINE, ROBERT
60558 KAHL, FREDERICK L.
60560 HARTLEY, DON
60608 MARTIN RESEARCH
60610 SIKORSKI, J.
60610 SMITH, DAWN A.
60614 LASKO, WILLIAM E.
60614 LEBEIKO, KEN
60614 WOODMAN, ANDREW W.
60616 RADVILLAS, CHARLES
60616 YOSHIDA, TATE
60617 HALE, ROGER A.
60618 KULESZA, A.
60618 RAVER, RICHARD W.
60618 ROESKE, EUGENE D.
60625 FLEIG, BARRY A.
60625 LOWE, GEOFFREY, D
60639 DABROWSKI, L.
60640 LAWTON, WARREN
60641 SAMARTINO, LOUIS
60647 TUPOLE, TIM
60648 ROLO, B.
60649 WALKER, CLARENCE
60659 JAFFE, DAVID L.
60690 SABELLA, R.
61764 PAGE, RICHARD
61847 BUSBOOM, RICHARD
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62024 DOWNS, WILLIAM
62025 RUSCH, ROGER A.
62223 SCHAEFER, ROGER
62223 STAMBAUGH, KYLE
62480 PHILLIPS, BRAD

62521 KERLIN, GERRALD S.
62704 ROMPOT, GEROGE W.
62901 ROTH, FRITZ
63017 FLYNN, DARRELL
63108 FOBES, JEFF
63031 LAMBERT, R.
63042 ACKERMAN, RICK
63111 HAMM, O. F.
63130 ELKINS, A. L.
63130 HONNELL, PIERRE M.
63130 REED, THOMAS E.
63131 TAYLOR, JOHN E.
63135 DENBOW, SONNY
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64117 MORRIS, DALE
64119 LEWIS, BILL
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64030 ROBERSON, NOLEN F.
64138 SCOTT, JERRY A.
64152 ROSS, J. B.
64058 WILLIAMS, GARY
65201 GIESEKE, CARL
65201 MC KINNON, CHARLES N.
65230 SIMMONS, WILLIAM H.
65305 LOCKRIDGE, CAPTAIN W.
66102 SOUCEK, CHARLES D.
66502 YEO, IRL
66106 LADISH, ROBERT G.
66208 HENDRICKS, J. WILLARD
66109 HANCOCK, ALAN C.
66720 GOERING, KEITH
66762 CUMMINGS, ROLLAND D.
67052 MUSITANO, CHARLES M.
67212 GILCHRIST
67701 DICKMAN, GARY L.
68112 MAYCITY, LYLE C.
68113 KUSUMOTO, BRUCE F.
68123 MARTIN, RONALD G.
68420 BEHRNS, ROGER J.
68505 RUYLE, BOB
68507 PHILIPPI, JIM
68508 APPLIN, RICHARD D.
68818 ADKISSON, DALE
68978 LESLIE, PAUL

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70003 ROME, WARREN G.
70005 SHIPLEY, CHARLES J.
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70062 FINK, LEON
70114 YOKUM, BRIAN A.
70118 SCHMIT, JAMES L.
70122 FLOSCKE, B. H.
70146 RYE, WELDON
70458 MC CARTER, W. H.
70808 WILSON, JAN R.
70815 SANDERS, HOMER
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72205 WHITEHEAD, NATHAN R.
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73106 OSBORNE, C.
73106 YOUNG, RON
73107 HADLEY, LARRY
73145 WOLFE, REX
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74114 KEREKES, KIRK ALLEN
75050 FULLER, W. C.
75050 MC KNIGHT, ROBERT A.
75080 KILGORE, DOUGLAS W.
75160 JORDAN, ROBERT L.
75205 STROUD, ROBERT
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75211 DUCONGE, H. P.
75211 SHEPHERD, BEN
75230 ARNSTEIN, ROBERT
75231 GARRETT, JIM
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75240 MARTIN, RICHARD
75247 KIRKWOOD, BYRON
75501 LEMOINE, SHERWOOD
75701 ARNOLD, JOHN M.
75701 WHIPPLE, RICHARD
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76010 CYKANA, MICHAEL J.
76010 GOUGH, BILL
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76107 STOCKMAN, BILL
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77018 MIKELL, HUGH B.
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77033 RENNIE, DAVID P.
77043 OFFMAN, GRAY
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77586 OVERFIELD, ROBERT A.
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78201 WISE, J.
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79760 RABENALDT, JOHN D.
79904 WAHL, JOHN E.
79912 COATS, JACK O.

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80201 DUNLOP, DALE A.
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80211 REW RAYMOND
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85028 HELBER, ROBERT A.
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89110 ERTWINE, VON C.
89601 COX, JAY D.

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90746 COPELAND, TOM
90807 ISENHOWER, JERRY L.
90814 LEACH, CHRIS
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91206 HAMILTON, JACK F.
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91403 CHRISTY, JOHN
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91740 LEFTWICH, JAMES
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92010 CASSEL, RUSSELL N.
92011 GUINN, W. A.
92014 MORRIS, G. SCOTT
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92025 BLANC, C. GARY
92025 BOWDEN, JAY C.
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92027 PLESKAC, LARRY
92035 HAYES, MICHAEL N.
92068 MC LAUGHLIN, BILL
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92111 MC AVOY, G.
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92307 CHAPMAN, GERALD
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98507 COCKRUM, K.
98686 CHAPMAN, LEWIS A.
98687 STUDLEY, WILLIAM B.

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92649 HOOKER, DONALD
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92660 SHAW, BENJAMIN
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92706 HARDESTY, JOHN
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93105 HOGG, R. D.
93106 DR. HOWARD
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93402 WENGER, H. V.
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93454 MURRAY, MYRON M.
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94025 ALBRECHT, BOB
94025 FRENCH, GORDON
94025 MOORE, FRED
94025 WALLIS, M.
94035 STRINGER, JIMMY P.
94040 KENDALL, BRUCE R.
94043 MARKLE, GEORGE
94043 ULRICKSON, R. W.
94063 JOHNSTON, BRUCE
94070 HWANG, RICHARD
94070 WILLIAMS, DAVID
94086 BRICK, JAMES
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94087 GUTHRIE, R. SCOTT
94087 STOUT, DAVID F.
94087 UBIS, CARL
94088 M&R ENTERPRISES
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94103 BERGER, BART M.
94105 HARRINGTON, RICHARD
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94114 O'MEARA, DAVID
94114 PARK, WALTER
94117 DIAMOND, STEVE
94117 LE BLANC, DAVID H.
94117 WALKER, JERRY
94118 DUNCKEL, PETER B.
94127 PETERSON, NEIL
94122 SILACCI, DAVID
94127 WALKER, RANDALL A.
94131 HAINSWORTH, K. P.
94301 BAER, ROBERT
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94303 CAMPBELL, RALPH
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94303 GRANDE, VINCENT J.
94305 FALL, RICHARD
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94401 MC GINNIS, K. A.
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94602 ROSENBERG, LOUIS
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94704 CALHOUN, JOHN N.
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94930 MEAN, BILL
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95035 OGLE, JOHN S.
95050 ABBOTT, JACK
95050 BURGOON, JOHN
95050 RGS ELECTRONICS
95051 BROOKS, WILLIAM
95051 GOOD, MARVIN
95060 SUNICK SYSTEMS
95070 TERRY, JOHN
95073 BOWLES, DAVE
95111 BARTH, HUGH A.
95118 BERG, ELDON
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95126 MC KEE, GERALD
95129 BILER, JERRY
95129 FOLEY, DAVID A.
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95388 REIMAN, E. JOHN
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95616 MOORHEAD, JOHN
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95827 FRIEDRICH, GARY
95903 CONFREY, ROBER
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95969 BUTTLES, GEORGE
95991 VAN WINKLE, ROBERT
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96637 KOCHEL, GEORGE
96369 HOVEY, C.
96601 CARLSON, R. J.
96601 POST, GARY T.
96720 TANOUE, WESLEY
96744 EMERSON, ROBERT E.
96750 CLANTON, E. L.
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96818 IZUO, WALLACE K.
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96822 O'ISHI, TAKEO
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97217 LAW, BARRY A.
97219 BERGGREN, DALE
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98115 BJORNSSON, SIGFUS
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98178 RIACHE, JOHN
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98225 STAMBAUGH, KENDALL
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98368 BOGGS, FRED
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99336 BEGGS, JOHN M.
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B2N 3J6 GORDON, MARK
B2Y 3C9 HAMILTON, K. W.
B3K 5H4 LEWIS, H. J.
E3B 2E1 BEAIRSTO
G0S 1Z0 MEUNIER, JEAN
G1V 2Z8 BERNIER, J. P.
G8T 6W4 BUCHANAN, NORMAN
H3Y 1L6 SEGAL, BRUCE
H9S 2C4 CARDINAL GILLES
J0J 1K0 PELLETIER, J.
J4K 3Z3 RUPLE, GARY
K0A 3G0 STONE, R. N.
K1G 1R3 DILLABOUGH, DEAN
K1K 3X5 BOYLE, LOUIS
K1V 7O4 RYAN, KEITH
K2H 7A8 LANGLOIS, P.
L4C 3K7 LONG, D.
L4N 1X9 SMITH, R. S.
L5A 3M7 SZILOCK, JOHN
L5H 1S2 PETTIT, BILLY H.
L6W 1A7 SOOLEY, CHARLES
L8S 1B3 GUENTHER, R. G.
M1G 2Z1 HARNELL, W. A.
M1H 2G6 PHOENIX, R. H.
M1W 1B7 BROSKI, S. G.
M2J 1L3 BURLAND, WAYNE
M2N 1E8 CAPPON, J.
M2N 2Z7 REIN, ALLAN
M4G 3Z1 MC LACHLAN, J.
M4J 2R4 STAUBER, F.
M4V 2N6 JERMYN B.
M4W 2B2 MAC MILLAN, DAVID
M4Y 1Z3 A. KAMIENSKI
M5G 1L7 LIGGINS, ROY
M5M 3Y7 GLADSTONE, R.
M6G 3G5 PROCK, IVAN
M6S 3C6 SENDECKY, M.
M8Y 4C5 HSU, T. H.
M9A 4M5 HERBAGE, S.
M9A 4M5 MELANSON, HAROLD
NOM 2V0 STOGDILL, DAN
N2C 1T6 ALTMAN, H. J.
N7A 3Y5 BOOKS, H. R.
R3G 2E9 KRAHMER, EDWARD
S7J 1S5 DURNIN, RON
T2L 1L7 TURNER, LAURENCE
T2M 2A2 CONN, WILLIAM F.
T2N 1Y3 SMALLWOOD, R.
T3A 0M2 TARCHUK, BILL
T3C 0R3 EARL, DAVID G.
T5M 0T3 MOREN E. N.
T6B 0P2 IVERSON, D. W.
T6C 0K9 DRAKE, STEVEN
T6G 2C2 MORRISON, DON
V0E 2C0 DEANE, RALPH
V0E 2T0 SIVERTS, CHRIS
V0N 3E0 BARLAK, ANDY
V0X 2A0 WOLFE, PETER
V1A 4Z9 ORAM, LLOYD
V2S 1E2 JONES, ROBERT
V3B 2L7 HYNDMAN, BRIAN L.
V3K 2Z3 SPENCE, HOWARD W.
V3N 2X6 POWELL-WILLIAMS
V3N 4B7 DAVIS, W. T.
V3V 2T2 HEINZ, HARVEY
V5E 3E6 HEISE, DONALD
V5Z 2R4 LAUI, H. W.
V6J 2G9 BRACKHAUS, KARL
V7H 2J4 REINEBECK, R. D.
V7J 1K8 SMITH, DAVID
V8G 2X4 INGLIS, DOUG
V8W 2Y2 DAVIES, T. K.

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