MICRO-8 COMPUTER USER GROUP NEWSLETTER
JOHN CRAIG & HAL SINGER -- EDITORS
CABRILLO COMPUTER CENTER
4350 CONSTELLATION ROAD JANUARY 11, 1976
LOMPOC, CALIFORNIA 93436 VOLUME 2, #1

Well, here we go again. Hal and I continue to groan and moan about the time and effort this thing requires but without a doubt it is a labor of love (and brings us both a lot of satisfaction). As we mentioned in NL #12 the minimum number of renewals before going ahead with Volume 2 was to be 350. So far we've received only about 250. If you haven't sent in your renewal, and would like to support this effort, we would sure like to hear from you.

I'm no longer with Varian Data Machines as an instructor. I'm now working out of my home as a Customer Engineer for Datachecker Systems (with a lot of free time to work on my computer). Before I left Varian I accuired enough scrapped and rejected boards to build a V-73 (the computer I taught there). It's now up and running, and my first project will be to develope an 8080 emulation package thru microprogramming (so I can run some of that software that's going to be developed in the future....and write some). By the way, if you need to get word to Hal or me during the day call me at home: (805) 736-7337.

One of our functions in the future will be the printing of summaries of various newsletters from around the country. We already have an exchange agreement with most of the local club newsletters and would like to work out a similar arrangement with those we haven't. The 'summary' will probably involve a one or two sentence description of the really good info contained in a particular newsletter. For example; "A color TV graphics system has been developed by Joe Smith and construction plans and software were published in the February issue of the Miami club newsletter." (Followed by information on how to obtain a copy.)

Wow! Have you seen "INTERFACE"? The Southern California Computer Society (formerly the Los Angeles club) has gone all out with it's "newsletter". There can be little doubt that it is a magazine (32 slick pages filled with lotsa good stuff). The magazine and membership in the SCCS is $10.00 annually (Southern California Computer Society, P.O. Box 987, South Pasadena, Calif. 91030, or call -213-682-3108). Some of you local clubs ought to investigate the possibility of becoming chapters of the SCCS so that you can benefit from being part of a large formal organization (get in on the group pruchases, etc.). And, speaking of magazines.... Wayne Green has left "BYTE". He is still very much interested in the computer hobbyist area and plans to publish about 40 pages of microcomputer info in upcoming issues of "73" magazine.

You'll notice in this issue an advertisement for a new microcomputer system offered by P C M . It's built around an Intersil 6100 microprocessor which is software compatible with a DEC PDP/8e. (And, if you're not aware of it, the PDP/8 is the most popular minicomputer ever sold. Probably 20 to 30 thousand of them out there!) It kind of boggles the mind when you consider all of the software which is available to be run on a machine such as this. This, is of course, an important consideration when purchasing any computer. Toomany guys have rushed out to buy hardware only to find they have a nice 'lite blinker' when they were all thru. And, speaking of new kits..... we've noticed advertisements recently from a company called Systems Research, Inc. (see p. 67, January issue of BYTE). They're offering a system based on the Mostek F-8 microprocessor. Several months ago the same ad said the system was based on the PACE chip. Has anyone had any dealings with this company?? We'd like to hear from you.

After reading all of the responses which have come in we now feel the newsletter will be primarily aimed in two directions; 1) Printing of participants letters (which might contain schematics, programs, comments on suppliers, equipment evaluations, and participant's present and future applications. 2) Summarization of local club newsletters and reprinting the best articles.(after obtaining permission, of course). We feel the 'heavy' stuff should be left to INTERFACE & BYTE (i.e., lengthy technical articles). You'll notice that this particular issue of the NL is only 12 pages, and printed half size. This was done so we could mail out (with a 13¢ stamp) copies to all of the volume 1 subscribers...regardless of whether a renewal has been received or not. Next issue will be back to the regular size.

Thanks for giving me a chance to have so much 'fun'.

JOHN T. CRAIG

#*#

SUBSCRIPTION FORM

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

☐..........................Volume 1	back issues	1 thru 4	$3.50
☐..........................Volume 1	back issues	5 thru 12	$6.00
☐..........................Volume 2		1 thru 6	$6.00

NAME ____

ADDRESS ____

____

ZIP ____________________

TELEPHONE # ____

(May be published -- leave blank if you prefer)

Also include (if you desire) a little note or letter describing your equipment, plans for the future, experience, etc. Thank you.

#*#

Several of the NL readers seem interested in the Martin Research MIKE203. I've had my system running for several months (with considerable help initially) and can testify to the general performance. It seems to be well made and the monitor enables the user to begin programming immediately. It may well be that the simple instruction set of the 8008 and the simplicity of adding perpheral equipment to the system offsets the apparent advantages of the faster and more "glamorous" 8080 and 6800 CPU systems.

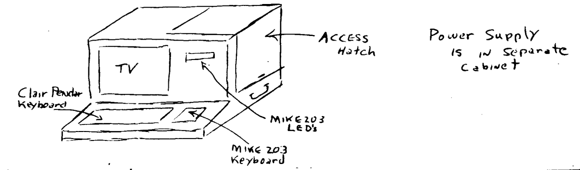
My only complaints on the Martin system stem from slow delivery times--which seem to be common (60 days). My system now consists of 4K RAM, a Suding TV and cassette interface (The latter has been unsatisfactory, and the former , marginal), and a Suding keyboard (Clair-Pendar, and very satisfactory). I've built a crude wood cabinet for everything, which satisfies my current requirements. It would be desireable, however, to eventually house the system in a commercial container of similar dimensions. My reconoitering of the market, however, leads me to believe that a good cabinet may well cost more than the computer. Ted Salume has observed, on several occasions, that the cabinet is an essential part of the system, and should be considered as part of the final cost.

I am currently building the TCH cassette interface and will report on it when finished. I should also mention in closing that I assembled the Suding TV interface and it is possible that it's marginal performance is the result of my lack of skill.

Sincerely,
John Ford
John Ford
October, 30, 1975

John Ford
5561 Esplanada Ave
Santa Maria, Calif, 93454

P.S. In response to Mr. E. Zibulka in NL#11: I made the same mistake on the Suding keyboard--left the conductive packing on. Fortunately, no ill results. It would have been helpful if a few more directions and warnings had been included with the package from Suding.



As you are no doubt aware, I am the President of the Amateur Computer Group of New Jersey(135 members). I am also the editor of our club's monthly newsletter. We are consciously aware of the publications in the field. We consider the Micro-8 NL the father of them all. Further, it serves a very useful function and we would like to see it continued.

Although communications has been established on local levels through clubs and their newsletters there is a need for communications on the national level. This is the strength of your NL.

Byte seems to be catering more to the needs of their advertisers than their readers; their treatment of hardware and software is generally very general and lacking in specifics. TCH is very strong in their treatment of hardware and software but provides very little in the way of exchange of info between computer hobbyists. The Peoples Computer Co is developing well as a general publication providing information exchange(free of advertiser influence) good games software and a little(very little) on hardware. PE, RE and the other mags rate weak in all areas of amateur computing.

Sincerely

Nov 31 1975

Sol Libes
President
Amateur Computer Group of New Jersey
995 Chimney Ridge
Springfield NJ 07081

PCM 12 December, 1975

P. O. Box 215 • San Ramon, California 94583 • (415) 837-5400

Attn: R.L. Nelson, Applications Engineer

FOR IMMEDIATE RELEASE

The last year has seen the introduction of several small minicomputers in kit form. Nearly all of these machines employ 8-bit microprocessor devices, and are supported by a minimum amount of software. The PCM-12, pictured here, is an exception. This kit computer is designed around the Intersil IM6100 microprocessor, a 12-bit static CMOS device that is software-compatible with the Digital Equipment Corporation (DEC) PDP-8/E minicomputer. The completed kit can execute most PDP-8 software, including assemblers, editors, debug routines and advanced languages like BASIC and FORTRAN. Much of this software is available from DEC on an unlicensed, over-the-counter basis.

The PCM-12 employs bus-oriented architecture to ensure flexibility and future expandability. The TTL-compatible 80-line bus accommodates up to 15 cards for device interfaces and additional memory. The machine is. equipped with 4096 words of 12-bit memory, and is expandable up to 32K words. The completed computer can do a memory-to-accumulator addition in 5.0 microseconds.There is provision for a vectored, priority interrupt system, and direct memory access. The control panel provides essentially all PDP-8/E functions, plus a built-in binary bootstrap loader.

The complete kit contains CPU, control panel, 4K words of static memory, TTY/CRT terminal interface, audio casette recorder interface, cabinet and power supply. Other interfacing modules are available. Assembly requires loading six printed-circuit boards. There is virtually no point-to-point wiring in the machine. All board interconnects are handled by the backplane bus board, and a single ribbon cable. Kit prices range from $400-$600, depending on options. Complete information is available from: PCM, P.O. Box 215, San Ramon, CA 94583; telephone (415) 837-5400.

PEQUANNOCK TOWNSHIP HIGH SCHOOL
SUNSET ROAD
POMPTON PLAINS, NEW JERSEY 07444

December 5, 1975

Dear Hal & Group

Please continue my subscription. When I receive the "Hot news flyer" in December I will pay for the next 6 issues by school check. I hope you guys keep going, you're doing a great job.

Our small Morris County group of enthusiasts (we're all members of the Amateur Computer Group of N.J.) now has the following goodies: 2 Altairs, 2 Mark-8's (1 homebrew wire-wrap), 1 MOS Technology 6502 (homebrew), 2 TVT 1's and 3 TVT 2's. The high school has a Hewlett Packard 2000E computer & 3 ASR-33, 1 Singer, 1Decwriter II and 2 TVT 2 terminals. The TVT 2 with RS 232 interface board works great with the HP2000. The serial interface board has to be strapped for "NO parity, NO bit 8"; (jumper G to F and jumper I to H).

I enjoyed Jim Brick's letter in N.L. #12. I think his analogy to canning jar lids was great. I'd like to add to the points he made by relating my experiences with 2 Southwest Technical Keyboards, KBD-1 & KBD-2 that I constructed. They were panned by many people in past newsletters. "Cheap switches", "switches don't fit", "jumper bus bars not trimmed right" etc. and I cannot argue but I can state from experience that the switches do fit with patience & a gentle touch. They are inexpensive but they do work well, as long as you remember that you are not using an IBM selectric. The bus bars do not need major trimming if you use good soldering technique. Enough.

The TVT 2's are fast enough at 110 baud, but I'd like to crank one up higher if I could find a source for 1 each 7497 I.C.

If for some reason you decide to call it quits we would like to thank you for one of the nicest hobbyist publications we've seen. It has been an invaluable tool in our attempt at understanding & building TVT's and Micro's.

Thank you again. You can be sure your efforts did not go to waste.

Very truly yours,

Andy Vics
Media Co-ordinator

AV:dk

Ken McGinnis, Box 2078, San Mateo, California 94401, requests that those of you who are interested in his group-discount purchase of new Phi-Decks should just send a SASE. He's sending back the checks he's received. He recommended contacting Processor Technology or the Digital Group for good cassette controllers and software.

Edward M. Evans, 46 Knoll Crest Ct., West LaFayette, Indiana 47906, (312) 743-4241, reports that he ordered $80.00 (Bankamericard) worth of P.C. boards from Digital Group on 11-15-75 and still hasn't received the boards. He wrote twice but didn't indicate whether or not he got a reply. Says he has had good luck with James and Godbout.

Andy Vics, Pequannock TWP H.S., Pompton Plains, New Jersey 07444, has some comments regarding two Southwest Technical Product keyboards he constructed. "....they were panned by many people in past newsletters as having 'cheap switches', 'switches don't fit', 'jumper bus bars not trimmed right', etc. I cannot argue, but I can state from experience that the switches do fit with patience & a gentle touch. They are inexpensive but they do work well, as long as you remember that you are not using an IBM selectric. The bus bars do not need major trimming if you use good soldering technique."

Jim E. Connaway, 639 Frederick St., S.W., Vienna, Virginia 22180, has his Mark-8 with 1K RAM, ¼K EROM, TVT-I, & Suding Cassette interface up and running with CHOMP, Weber's keyboard loader, and Morse Code program operating. He has Solid State Music's 4K board waiting to be incorporated as well as a paper tape reader, acoustic coupler, and a MNH Modem.

James A. Eby, RR#1, Box 337A2, Pennington, New Jersey 08534, has a Sphere II kit on order and is interested in systems & programs using the 6800. With regard to the Iasis self-teaching course on microcomputers he said that his company ordered it and they found many mistakes in the first few volumns and the self-instruction is effective but very slow and repetitious.

** Here's a hot one.....Tom Campbell, 1183 Sandia, Sunnyvale, California 94087, is currently building a system using the IMP-16 board. He has some **goodies** he would like to trade: a PACE chip, sixty 5280 4K RAM chips, and sixty 2102's.

John D. Rabenaldt, Data Processing, Ector County Schools, Odessa, Texas 79760, (915) 332-9151 ext. 43, was having thermal and memory problems with his Altair so he returned it to them on Oct. 8th. His letter (dated 4 December) indicated that he didn't expect it back until mid or end of January. Mits explained that they had a backlog of units and a shortage of personnel to work on them.

Steve Wash, 7277 Bluff Acres Dr., Greenwood, Indiana 46142, (317) 881-8548, has renamed his Mark-8 the "Kluge-Comp .5" because it runs very nicely when it only has to read the 'M' register, but hangs up when trying to write into 'M'. (He says, "Close...so close!") He has purchased the MOS Technology 6502 MPU, and their hardware and software manuals. He says it is quite a buy for $35 and had high praise for the hardware manual which, although deals primarily with the 6502, describes in a general sense what to consider when designing a system around a microprocessor.

George Buttles, P.O. Box 201, Paradise, California 95969, says the NL is really needed for people living in isolated areas (Paradise must be something like Lompoc!) He has an 8800 with 4K. He ordered an I/O module (by phone) from Processor Technology in Berkeley, Calif. using his Master Charge and was amazed and tickled with their super service which got it to him in three days. He has also ordered their Video Display Interface, and says that it looks like their cassette system has some nice features (computer control of tape motion,etc.).

A.J. Robertson, Jack's TV Supply Inc., P.O. Box 10482, Birmingham, Alabama 35202, (205) 328-9890, would like to acquire an 8 or 16 bit CPU with line printer, TVT, w/floppy or hard disc for accounting and inventory control.

New Address: William E. Lasko II, 5244 W. Belmont, Chicago, Illinois 60641, (312) 736-2266

Wesley Tanoue, 2147 Kaumana Dr., Hilo, Hawaii 96720, (808) 935-0130, has an Altair w/2K, a not yet interfaced flexowriter. He's expecting delivery of a card reader and will build a TVT II, 8 I/O port interface, TCH graphics terminal, and Suding Cassette interface.

G.L. Thrower Jr., Box 3293, Florence, South Carolina 29501, (803) 669-5270

R.G. Parks, 25211 Stockport #121, Laguna Hills, California 92653

Kenneth Hogg, 417 E. Kiowa St., Colorado Springs, Colorado 80905, (303) 471-7315

John D. Withrow, Jr., 233 W. Mt. St., Kernersville, North Carolina 27284, receives over a dozen publications for the electronics/uP field already, but he's renewing his subscription to the NL, And, he adds, "that should tell you something about the need your publication fills." Also, he is no longer a "comp sci student at U. of N.C." (#12, p. 6)....he is "looking for a job."

John M. (Jack) Cloninger, Jr., 2201 Riviera Pkwy., Pt. Pleasant, New Jersey 08742, is building his peripherals first and hasn't decided on a microprocessor. He's got an SWTP TVT-II assembled and tested...and he speaks very highly of SWTP.

John Lind, 422 Ramsey Avenue So., Litchfield, Minnesota 55355, has sent for an Altair 680 & is already on the prowl for peripherals.

Bob Pearce, 504 McCoys Fork Rd., Walton, KENTUCKY 41094 (606) 485-4951, announces that his "MIKE-2" is up and running great with the Digital Group's keyboard & cassette interface.

Teunis Slagboom, 1694 Donnelly Ave., Victoria, B.C. V8P1X9, has joined the ranks of the Altair 8800 owners.

Dana Scott, 15 Evergreen Ave., Auburndale, Massachusetts 02166, reports that his 4¼K Altair worked beautifully the first time power was applied. He's interested in music synthesis control, audio mixing control, and TVT games. He would like to hear from someone who has a Processor Technology Video Display Module. He would also like to know the access time of a 1702A EPROM to aid him in writing his cassette timing loops. (I looked but couldn't find it.)

Thomas Parouette, P.O. Box 92, Clinton, New York 13323, has ordered the hardware and programming manuals for the MOS Technology set. He's thinking about designing a computerized dispatch board for the local fire station.

Christopher Taylor, 108-B Largo Lane, Minot AFB, North Dakota 58704 (701) 727-9204, has an 8008 "home brew" micro and is working on a MC6502 system design. FOR SALE: Chris would like to sell a TVT-1 w/UART, and a Solid State Music 4K Memory board (w/sockets & edge connector).

James A. Stark, M.D., 485-34th st., Oakland, California 94609, is not to happy with the half-size NL and is very interested in a budget oriented floppy disc. Ph: (415) 658-2566

Sy Lieberman, 1489 Durango Ave., Los Angeles, Calif. 90035, would like to see more unbiased user reviews of available kits (i.e., written by those who have built them).

Gary Fishkin, Box 349, Rochester Institute of Technology, 25 Andrews Memorial Drive, Rochester, New York 14623.

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USER GROUPS

DEC Classics in educational use: If you are using a DEC Classic for educational purposes (or know of someone who is) contact LO*OP CENTER
Ph: (707) 795-0405
8099 La Plaza
Cotati, Calif. 94928

VARIAN Computers owned by private individuals: If you have, or know of someone who has, a Varian 620 or V-70 Series computer contact:
Ph: (805) 736-7337
John T. Craig
2497 Lompoc-Casmalia Road
Lompoc, California 93436

....

Fred Litton Jr., Litton Instruments, 3618-30th St., Lubbock, Texas 79410

Kim De Vaughn, P.O. Box 6706, Reno, Nevada 89503, is wondering what has happened to The Computer Hobbyist. Hasn't got anything from them since Vol. 1 No. 7. (#8 is out, Kim)

Ed C. Epp, Freeman Jr. College, 748 South Main St., Freeman, South Dakota 57029, is seriously considering the Digital Group's 8080 system & would appreciate comments from anyone familiar with it. He's also interested in a Classic for the school. (see above, Ed)

John G. Raiche, 10406 55th Ave. South, Seattle, Washington 98178, Ph: 723-6305, has written his first significant program! It's a tic-tac-toe game and he's understandably proud of it.

Ed Andrews, 51 Glenburn Rd., Arlington, Mass. 02174, has an 8800 and TVT II & an interest in software.

William Cattey, 39 Pequot Road, Wallingford, CT 06492 writes (Nov. 30 1975): "I am a personal friend of Howard P. Dodge of Wallingford but would like to hear from others interested in homebrew and other types of computing. I have near infinite access to our PDP-8m which has a single Dectape, 16K of core, 4 going on 5 terminals, and a version of basic that you would not believe. I believe it is the best multi-user BASIC usable on a DEC PDP-8 without going to TSS-8. The computer was purchased last April as a replacement for our old 8i which had 8K, a 32K disk, and a high speed PTR. The business office is receptive to further purchases provided we supply the money. Perhaps a newsletter covering this half of the US is the answer. Not only would it provide a needed service, but if we ever did get into the black, we might be able to further expand our system. What do you think? (I'd recommend cookie sales, H.S.) Soon, I hope to be embarking on an independent study project at my school. After completing our new SWTP TVT, and a refresher course in Digital Logic, I plan, in whatever time remains, to design and build a micro based on MOS Tech's 6502. From what little I have seen so far, it seems like a fine and expanding system in addition to its low price. I may be talking more about this later. Incidentally, the TVT seems OK. SWTP was very good about the two bad switches on the keyboard and replaced them free of charge. At home, I have one of Mini-Micro-Mart's Riker-Maxon terminals without printer. (Anybody go a '32 cheap?) Half of it came within three weeks. The rest came a month later followed by the maintenance manual. I think they are OK if you just have a little patience with their slow delivery."

Dan Wingren, 2714 ½ Greenville Ave., Dallas, TX 75206 (214) 827-3224 is still an information collector. He is still in awe of his HP 55 programmable calculator and is learning from it. He has built seven or eight digital clocks and timing devices, some from scratch, but says that he is so backward that he has to look up Ohm's law whenever he needs it. He'll probably break down and order a microcomputer kit in about 18 months.

Grant Runyon, 1146 Nirvana Rd., Santa Barbara, California 93101, (805) 962-7734, is a high school in Santa Barbara with an almost completed Mark-8 (hell, the lights blink, Grant, what more do you want?). He's building a home terminal to interface with the school's Nova, also.

Mark Goldstein, P.O. Box 825, Tempe, Arizona 85281, is presently constructing X-Y displays under analog computer control (analog music synthesizer) and will be adding an 8-bit micro with TVT and cassette storage. He would like to communicate with anyone with ideas on converting X-Y deflection voltages into standard video signals in real time, simulating oscilloscope display on video monitors.

Michael G. Scott, Mike's TV Repair, Box 105, Kiron, Iowa 51448, &712) 675-4540, would like to know if there is any noticable improvement by implementing INTERLACING into a TVT or other CRT unit. He's also having a problem getting a 9602 Monostable.

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From John Moorhead, 928 J St., Davis, California 95616:
"On July, 17th, 1975 I sent you a check for back issues 1-4 and a current order for 5-12. To this date I have received only those issues starting from number 9 on up. What gives?" We blew it, John, and by now you've received those back issues. We sure hope you're in a very small minority....and if anyone else has a similar complaint, let us know. John also had "the following contributions to your excellent newsletter." He has an Altair with 10K of RAM and 8K of ROM containing the Proc Tech ALS-8 and simulator packages. He has an ASR-33 hooked into a Proc Tech PT 3P+S, a non-functional SWTP TVT-II, and a Proc Tech VDM with monitor. He does not recommend the TVT-II and says that the Processor Technology Video Display Monitor is a much better way to go.

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December 28,1975

Mssrs. Singer & Craig,

Am enclosing $6 for six more issues. I think the newsletter provides a neededforum for ideas and circuits which the magazines might choose not to use. Even if some designs are "marginal" they could provide springboards.

Lest anyone should think that that Mini Micro Mart has reformed: I placed an order for an RM terminal and Mark-8 kit around August 15. Six weeks later I received a portion of the terminal (bulky, but nice looking), after four months I received four of the Mark-8 boards, probably because of their official obsolescence (as per the enclosed letter from RE). Am still waiting, waiting, waiting for the terminal cover & documentation, have received no response to a request for a refund on the unshipped kit, and now have four Mark-8 boards with nothing to put on them and no book as to where to place the components.

I would be grateful if anyone would loan me a copy of the Mark-8 book or some component layout diagrams.

Also would like to hear from people who ordered from MMM and did not receive a shipment or refund,for my letter of complaint to the Post Office, BBB, N.Y. attorney general, etc., and from from people who found that what they received was not as advertised,in preparation for my letter of complaint to the Federal Trade Commission.

I plan on building the Mark-8 with the keyboard on port 0, TVT-cassette on port 1, a push/pop stack on the interrupt input, a la Bowles in issue 7, with a bootstrap prom on the keyboard input, or in the keyboard prom, if that's possible. If I can sneak a calculator input in via the front panel I'll have all the inputs I'll need.

I have no expertise in electronics or computers, so can't contribute in that department. I do have one suggestion for layout. It would help in looking up articles in past issues if one or two key-words identifying the topic of each item were placed in the margin. If these key words were standardized in length it would perhaps make preparing an index easier in the future.

Keep up the good work.

Sincerely yours,

John N. Foster

John N. Foster
920 E. 19th St. Apt. 319
Minneapolis, MN 55404

Dear Reader:

Thank you for your order for the mini computer instruction project.

As you must know, this was first publicized in the July 1974 issue of RADIO-ELECTRONICS. From that time up to October 10, 1975, we have been able to fill orders for mini computers. However, our supply is finally depleted.

We therefore, regret that we must return your order unfilled.

Thank you for your interest in RADIO-ELECTRONICS.

Sincerely yours,

Harriet I. Matysko

Harriet I. Matysko
Circulation Director

THE MEDICAL SCHOOL
WARD MEMORIAL BUILDING
303 E. CHICAGO AVE.

NORTHWESTERN UNIVERSITY
CHICAGO, ILLINOIS 60611

Page 3

4 Dec. 1975.

Dear Hal:

I would very much like to see the μ8 computer user group NL go on. It is better than Byte in being more responsive to subscriber needs. Also, there is a wider range of material per issue due to many contributers inputting ideas vs only a select few. Furthermore, I would like to have NL continue in the same format. As such, it is a very good reference for an ignorant but eager-to-learn beginner to use in getting into μcomputers. I would object to the "computer conference" (#12,p.3 - David Christiansen) on at least 2 grounds:

(a). Many of the really green beginners may not have the special equipment required to handle such a sophisticated form of communication.

(b). This sort of thing would not be useful because of the smallness of the CRT character to page size ratio (one would need many "pages" to cover a relatively small # of characters). Finally, there is the question of how much money a large group of people would be willing to put up for such a system -- especially if hard copies are desired.

It is true that there are many NL's around these days -- Many of them occasionally carry worthwhile articles which might be useful to people who are ignorant of their existence. This leads to the idea of having various NL's sending in camera-ready copies of their contents, along with addresses, costs, and level of expertise required for comprehension of material. What do you say? It would certainly bring interested readers and interesting articles together.

I have sent a SASE to Hal Lashlee for info concerning the LSI-11 system (#12,p.1). It sounds really neat. I would be mostly interested in setting up a color TV graphics system for use in 3D visual display and in language instruction for young people. One of my concerns at present is what the language in such a system might be. It seems to me that most of the μcomputers work is being done with 8008 or 8080. Thus, to really be able to interact meaningfully with other folks' software, would I need a 8080-compatible language? With this in mind, Sumner Loomis' Universal Code (#12,p.10) would be a real help. Hope it gets worked out in the near future! OR: If it doesn't get worked out, how about expanding on an existing system such as APL? Hmm?

Since my main interest is in graphics, I will probably be dealing with a great deal of character-space manipulations. And, what better way to handle this than by splitting that space into a matrix of subspaces, each of which can be manipulated separately. APL is the best language I know of for handling matrices. What I would like to see developed is an APL interpreter for a μcomputer system -- say, 8080-compatible. Or -- is there already one out there?! If so, please let me know!!

Finally: Anyone interested in APL, and in knowing others with the same interest? ****MAPLE**** is starting up. Interested? If so, contact: → μcomputer APL enthusiasts!

* John Sikorski *
* 710 N. Lake Shore Dr. *
* Chgo, IL. 60611. *

Sincerely,
Ruth C. Low

Ruth C. Low.

GENTLEMEN:

ENCLOSED IS A CHEQUE FOR $6.00 FOR YOUR NEXT 6 ISSUES AND A SASE.

SUPPLIERS: POLY PAKS STRIKES OUT.
ON JULY 24 I SENT AN ORDER TO POLY PAKS FOR, AMONG OTHER THINGS, 10 50K 15 TURN TRIMPOTS AT 2/$1.00.
AUGUST: RECEIVED ORDER WITH 10 50 OHM TRIMPOTS (PART NUMBERS FOR ALL VALUES WERE THE SAME). FILLED OUT THEIR 'CUSTOMER SERV-O-GRAM' INDICATING THAT I WAS RETURNING 5 PKG. OF 50 OHM POTS IN EXCHANGE FOR WHAT I ORDERED.
SEPTEMBER: GOT PACKAGE AT CUSTOMS. 5 50 OHM POTS ENCLOSED. REFUSED PACKAGE, WROTE ON INVOICE THAT I HAD ORDERED 10 50K OHM TRIMPOTS, I.E. 50,000 OHMS.
OCTOBER: NO RESPONSE.
NOVEMBER: MAIL STRIKE IN CANADA.
DEC. 18: RECEIVED PACKAGE - THEY HAD MADE OUT ANOTHER SERV-O-GRAM TO THE EFFECT THAT I WAS RETURNING 5 50K OHM TRIMPOTS AT 2/$1.00 FOR A TOTAL OF $5.00 (???), AND THAT I WANTED 5 50KR AS A REPLACEMENT. IN THE PACKAGE WERE 5 MAN-7 LEDS WITH A COMPLETELY DIFFERENT PART NO. FROM THAT ON THE ORDER. I GAVE IN AND PAID THE 1.60 DUTY.

MORAL: DON'T WASTE YOUR TIME AND MONEY ON POLY PAKS- THE INCREDIBLE HASSLE ISN'T WORTH IT.

I'M HAVING A MEETING AT MY APT. ON JAN. 23 AT 8:30 PM FOR THE PURPOSE OF EXCHANGING IDEAS, SWAPPING SOFTWARE, EQUIPMENT, AND PARTS, AND POSSIBLY ORGANIZING A TORONTO AREA MICROCOMPUTER CLUB. PLEASE PHONE ME BY ABOUT THE 20TH IF YOU INTEND TO COME SO I'LL KNOW HOW MANY PEOPLE TO EXPECT. WE PLAN TO SERVE COFFEE AND SOME SORT OF SNACK, AND WILL HAVE AN ALTAIR 8800 RUNNING THE PROCESSOR TECHNOLOGY MONITOR/EDITOR/ ASSEMBLER IF AT ALL POSSIBLE. A MAP IS ENCLOSED.

I'LL SEND FURTHER NEWS AFTER THE MEETING.

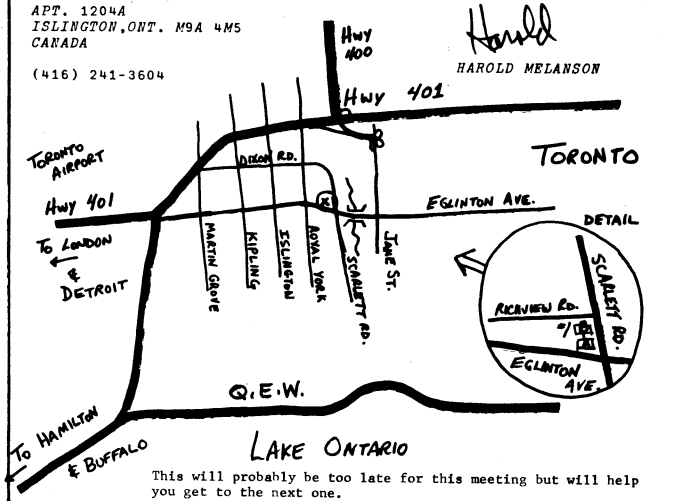
SINCERELY YOURS,

Harold

HAROLD MELANSON

1 RICHVIEW ROAD
APT. 1204
ISLINGTON,ONT. M9A 4M5
CANADA

(416) 241-3604



This will probably be too late for this meeting but will help you get to the next one.

Jackie W. Pierce, 460-84-4884, 178 Signal Co., APO, NY 09120k writes: "I just received by TVT-III from Mini-Micro-Mart. They are slow, but the board sure looks nice. It appears that the only difference in the TVT-II and TVT-II is the expandable memory (the main board looks to be pin for pin and run for run the same). I ordred a MITS 680 (good price I think). I also have on order a Wolensak cassette deck and a printer that prints 5 x 7 matrix on a 2½ inch adding machine paper. I will comment on them when I receive them and get them hooked up. I have ordred from MOS Tech their 6501 and 6502 and manuals. My Mark-8 (modified) has been running since July and is now expanded to 8K memory with a memory save switch for each k. My Mark-8 has a standby switch which turns off power to all boards except the memory board, and it reduces the voltage on the memory board to 3.2 volts (memory is retained at that voltage). Also I have a fail safe back up battery to kick in and supply voltage to the memory board when the AC goes. I have no ROM's in use at this time and I don't think I'll need them with this setup. I have some ideas on a speaking and listening computer using filters (controlled) and white noise generators. Anyone working in this area, please write and we can compare notes."

Irvin F. Havens, 9 Harvey Lane, Westboro, MA 01581 says that NL content has been the start of an education for him. He did not know anything about the possibilities and still doesn't know much but will get started on at least a terminal. At work he uses a Wang 700C with typewriter output and a dual tape cassette and finds it a real help. He also has access to a large IBM system thru a batch terminal and runs some large jobs on it. Several people he knows have their own computers at home but none are doing anything with them. Mostly the people that build them are not the people that use them.

Wallace K. Izuo, 960 Ala Lehua St., Honolulu, Hawaii 96818 (808)839-7542 home and (808) 474-4292 office has an ALTAIR 8800 with 256 words memory and is building the Altair PIO board and the 1 K expansion, a Suding TVT, Proc Tech 3P+s, Datanetics Kbd, Proc Tech mother board and card cage, Proc Tech Extender board and a Godbout 4K Ram (2). He is interested in a cassette interface and building a low cost system.

Fred Brockman, 1608 Wylie Drive, Modesto, CA 95355 would like to jump in soon with some sort of 8080 system along with some version of Lancaster's TVT. He is going to wait to see what the recent price reductions do to system cost. He notices that most programs seem to be done in machine language. As for higher level languages, only BASIC seems to get mentioned. His programming experience is with FORTRAN on a CDC 6400 and he would like a micro that favored FORTRAN.

William T. Precht, 1102 South Edson, Lombard, Illinois 60148, Ph: 620-1671, reports that his Altair "toy" continues to grow, mostly with enhancements from Processor Technology, whose attitude and product quality is unexcelled. (The Chicago group is growing and anyone interested should write: CACHE, P.O. Box 36, Vernon Hills, Illinois 60061. CACHE: Chicago Area Computer Hobbyists' Exchange) He also mentioned that he would like to see a national conference of computer hobbyists someday. Fantastic idea. His comments on Mini-Micro-Mart read like this: "When the new FTC rule goes into effect, Maury Goldberg of MiniMicroMart may as well throw in the towel and keep the loot he has acquired for his junk by misleading advertising and Big Talk on the telephone."

Jim Brick, 820 Sweetbay Dr., Sunnyvale, California 94086, (408) 247-0312, says we didn't get his name and address in the roster printed in NL's 11 & 12. (We certainly do apologise to all the other people who were not included in that roster. We hope there weren't many, and we're trying to get the ones we missed.)

Marshall Hall Edgell, 184 Hwy 86 RR 3, Hillsborough, North Carolina 27278, (919) 732-7179, has a Sphere III and would like to acquire a vector graphic system.

Chase Ambler, The Asheville School, Asheville, North Carolina 28806, would like to see an electronic timer for competitive swimming using a microprocessor (commercial prices start at $4K and go up over $20K).

Joseph P. Chalala, RD 1, Willow Street, Pennsylvania 17584, would like to get a schematic or any other info on a computer terminal made by General Computer Systems. They were sold as surplus by ALTAN Electronics and were equipped with a DI/AN strip "S" printer.

Don Morrison, 32200 Arlington, Birmingham, Michigan 48009, (313) 642-0175, has an Altair 8800 with 25K of memory (is that going to be enough, Don?). He has the Mits 8K BASIC & is still waiting for their assembler (since July 1st). With regard to suppliers he says, "Godbout, James, and Digi-key have been consistently excellent; Processor Technology looks good at this time; MITS has been good although slower than we would like; and good old Mini-Micro Mart continues to run hot and cold with some excellent and some miserable service. The Digital Group is running Mini-Micro-Mart a close second in the inconsistant level of service ranking."

Steve Fischer, PO Box 2412, Rapid City, SD 57701 has built an 8080 masked priority vectored interrupt interface and will send schematics in January. He'd like to run BASIC on his 8080.

WOULD ANYONE WHO IS FAMILIAR WITH THE MODEL H + 311 KLEINSCHMIDT PRINTER PLEASE CONTACT ME? I HAVE AN ALTAIR 8800 W/8K OF MEMORY, THE ACR 88 CASSETTE I/O AND A TVT-1 HOOKED UP TO IT. I ALSO HAVE 8K BASIC FROM MITS UP AND RUNNING. I HAVE THE ALTAIR PIO BOARD FOR THE KLEINSCHMIDT, BUT SINCE THERE ARE SEVERAL VOLTAGE LEVEL CHANGES INVOLVED, I AM LOOKING FOR SOME GUIDANCE ON THIS PROJECT. I AM WILLING TO GIVE SOFTWARE ROUTINES TO ANYONE WHO CAN HELP ME OUT. I DON'T HAVE TOO MANY AS YET, BUT YOU ARE WELCOME TO WHAT I HAVE IN EXCHANGE FOR SOME HELP ON THIS PROJECT. THE M-311 IS A 30CPS PRINTER AND SHOULD BE A VERY NICE ADDITION TO MY COMPUTER ROOM WHEN IT IS UP AND RUNNING. M. DOUGLAS CALLIHAN, BERKLEY ST. RFD # 1, BERKLEY, MASS 02780.

EL PASO COMPUTER GROUP: Contact Alvin Schatte (598-9748) or Thomas Thompson (581-0676) or write: Altair, 213 Argonaut #27, El Paso, Texas 79912. (Address is Jack O. Coats')

Glen Smith, 5822 Daffodil Cir., Dayton, Ohio 45449, would like to see newsletters devoted to particular microcomputers (think you'll see this already starting, Glen). He has an Altair w/12K, Suding cassette & calculator interfaces, Clare-Pender Keyboard and a rather impressive 128 character + 128 graphic "character"TV display in the works.

Bobby Baum, 6607 Pyle Rd., Bethesda, Maryland 20034, is building the Universal Microcomputer, which will run any microprocessor up to 16 bits with the same bus structure and front panel. (Sounds interesting.)

Beardsley Ruml, II, 3306 Cathedral Ave., N.W., Washington D.C. 20008, is very interested, and currently involved in the development of a "$2000" dedicated system for law offices. He referred to Dennis Faulk and his aspirations (see NL #12). He is currently building an 8080 based system (as yet unannounced...so we won't do it here) and would like to get in touch with anyone working on a word-processing system.

S.A. Cochran, Jr., P.O. Box 607, Tyler, Texas 75701, (214) 592-3833, is also an attorney interested in an 8080 for law office applications. He cited one of the problems as being the need to come up with a suitable tape drive. (Beardsley Ruml said that he was using a new improved -three of 'em- Phi-deck for his system.)

Gary Coleman, 14058 Superior Rd. Apt 8, Cleveland, Ohio 44118, (216) 371-9304, (Note: address correction) says that an 8080 board is now available from the Moducomp people in Canada and can be plugged directly into the Mod-8 backplane. He says also that the Cleveland Digital Group is really taking off.

Mogens Pelle, Birkhojterrasserne 416C, DK-3520 Farum, Denmark, is glad the NL has provided him a means of contacting other hobbyists (1) in Denmark, and notes that his name & address was not included in the roster. (The length of that street name is probably why, Mogens!)

"Intel 8080 Microcomputer Systems User's Manual" **Page 4**
– New, first printing July 1975, 8½x11, about 200 pages
– Good Book –

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SL
R;
C>* I BELIEVE I INCLUDED A LISTING OF MY HEX KEYBOARD LOADER
C>* (ILLUSTRATING PARALLEL I/O BUS SEQUENCE) WITH MY SUBSCRIPTION
C>* ORDER. SINCE THEN I HAVE DISCOVERED A MISSING JUMPER ON MY
C>* SWTP KEYBOARD WHICH MADE MY CANCEL KEY CODE EQUAL TO THE
C>* X KEY CODE INSTEAD OF CONTROL-X. FOLLOWING IS A CORRECTED
C>* PROGRAM LISTING FOR MY CORRECTED KEYBOARD, WHICH SHOULD WORK
C>* ON ANYBODYS SWTP KEYBOARD, PROVIDING ALL OF THE JUMPERS ARE
C>* INSTALLED. REMOVING THE FIRST TWO PROGRAM INSTRUCTIONS AND
C>* CHANGING THE I/O INSTRUCTIONS TO POINT TO A PARTICULAR PORT
C>* SHOULD MAKE THE PROGRAM USABLE ON AN 8080 WITH STANDARD I/O PORTS.
C>*
C>*
C>T HXKEYLDR LISTIN[ACC 191 A
'191' REPLACES ' A (299) '.
R;
C>T HXKEYLDR LISTING A * * (COL 1-79

   KEYLDR                                                   PAGE    1
 LOC  OBJECT   STMT          SOURCE STATEMENT

               0001          HEADER KEYLDR    ;
               0002   ;
               0003   ;
               0004   ; SOUTHWEST TECHNICAL PRODUCTS KEYBOARD HEX LOADER
               0005   ;  WITH BACKSPACE AND ECHO (CANCEL KEY = BACKSPACE)
               0006   ;
               0007   ;         BY JIM BRICK
               0008   ;
    00 FC      0009  SELECT   EQU     0FCH      ;SELECT DEVICE PORT
    00 FD      0010  INPUT    EQU     0FDH      ;INPUT PORT
    00 FE      0011  OUTPUT   EQU     0FEH      ;OUTPUT PORT
    00 FF      0012  CONTRL   EQU     0FFH      ;CONTROL-OUT PORT
    00 30      0013  CANCEL   EQU     030H      ;KEYBOARD CANCEL CODE
               0014   ;
               0015           ORG     0C0H      ;
 00C0 3E 01    0016  HEXLDR:  MVI     A,01      ;I/O BUS DEVICE ADDRESS INTO AC
 00C2 D3 FC    0017           OUT     SELECT    ;SELECT DEVICE
 00C4 21 00 00 0018           LXI     H,0000    ;LOAD ADDRESS (CHANGE TO SUIT)
 00C7 31 00 01 0019  BEGIN:   LXI     SP,0100H  ;INITIALIZE STACK POINTER
 00CA CD E1 00 0020  INLP:    CALL    READ      ;GO READ KEYBOARD
 00CD 07       0021           RLC               ;SWAP LEFT
 00CE 07       0022           RLC               ;  4 BITS
 00CF 07       0023           RLC               ;    WITH RIGHT 4
 00D0 E6 F0    0024           ANI     0F0H      ;KEEP ONLY LEFT 4 BITS
 00D2 77       0025           MOV     M,A       ;SAVE IN MEMORY
 00D3 CD E1 00 0026           CALL    READ      ;GO READ KEYBOARD
 00D6 1F       0027           RAR               ;RESTORE RIGHT 4 BITS
 00D7 E6 0F    0028           ANI     0FH       ;KEEP ONLY RIGHT 4 BITS
 00D9 B6       0029           ORA     M         ;COMPLETE 8 BIT WORD
 00DA 77       0030           MOV     M,A       ;  INTO MEMORY
 00DB D3 FE    0031           OUT     OUTPUT    ;ECHO WORD IN LEDS
 00DD 23       0032           INX     H         ;NEXT MEMORY LOCATION
 00DE C3 CA 00 0033           JMP     INLP      ;GO GET NEXT WORD
 00E1 DB FD    0034  READ:    IN      INPUT     ;READ KEYBOARD
 00E3 07       0035           RLC               ;'KP' BIT INTO CARRY
 00E4 D2 E1 00 0036           JNC     READ      ;LOOP IF 'KP' LOW (KEY STILL DOWN)
 00E7 DB FD    0037  BITS:    IN      INPUT     ;'KP' HIGH, GET NEXT CHARACTER
 00E9 07       0038           RLC               ;'KP' INTO CARRY
 00EA DA E7 00 0039           JC      BITS      ;LOOP IF 'KP' HIGH (KEY NOT PRESSE
 00ED FE 30    0040           CPI     CANCEL    ;PRESSED KEY = CANCEL?
 00EF C0       0041           RNZ               ;NO IF .NZ. ,RETURN
 00F0 2B       0042           DCX     H         ;DECREMENT MEMORY POINTER
 00F1 7E       0043           MOV     A,M       ;MEMORY INTO AC
 00F2 D3 FE    0044           OUT     OUTPUT    ;ECHO IN LEDS
 00F4 C3 C7 00 0045           JMP     BEGIN     ;GET NEXT CHARACTER
               0046          END               ;
NO. OF ERRORS IN ASSEMBLY =     0
NO. OF LOCATIONS USED = 000037 (HEX)    RELOCATABLE
   KEYLDR                                                   PAGE    2
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WILLIAM E. SEVERANCE, JR.
TELEPHONE 207 935-2371
MAIN STREET
CENTER LOVELL, MAINE 04016

December 15, 1975

Enclosed is my check number 409 for $6.00 for six more issues of the Micro 8 Newsletter. I hope that you obtain the necessary number of renewals to continue operation. I have been most impressed with the N.L. and have found it to be an absolute necessity for anyone interested in hobby computers. Although Byte is a fine magazine, we hobbyists need a forum to freely discuss suppliers, new products, etc. and to aid in the interchange of information between such hobbyists. I have been highly pleased with the number of letters I've received from the other participants, hearing of their plans, problems, and so on. I get quite a kick out of being able to provide information to someone just starting out in microcomputers and am also pleased to receive help when I request it. The N.L. can foster this information sharing, while Byte cannot. So, by all means, continue the N.L. — at least for the purpose of summarizing the activities of the participants!

By now, I had hoped to have my text editor TEXTED ready for distribution. However, I've run into problems with my cassette interface being somewhat unreliable. After loosing 3k of nearly debugged TEXTED machine code, I'm ready to change to a different interface. I'll keep working at it though when I find some more time. Also, noisy interrupt lines are driving me crazy.

Back a while ago, I attended the Sphere Corp. demonstration in Boston. They seemed to have a lot of bugs - software and hardware. Their diskette operating system, the line printer interface, the 16k memory boards, and BASIC all had problems at that time. So, we'd all better wait a bit, I guess.

All for now — I'll try to get some good software articles off to you soon. Please continue the N.L.

Sincerely,
Bill
Bill Severance, Jr.

12 December 1975
381 Poplar St.
Winnetka, Ill. 60093

Dear Hal and John:
My check for $6.00 is enclosed. Keep up the good work. Please send or publish the names of the administrators at Cabrillo High School to which we should send our congratulations for their generosity and willingness to support this nationwide educational endeavor of yours. There are all toofew administrators that have the foresight and vision to recognize the value of such activities - the value not only to the many hobbyists, but to the involved students and the innovative faculty.

But for fear that your stamina may not keep pace with your innovativeness and ambition, I encourage you to publish every other month. I greatly enjoy the newsletter and am obtaining useful information. I want it to keep coming. (But also, how much money can I afford to put into literature? Another reason for publishing every other month.)

At the last meeting of the Chicago Area group with 60 in attendance, the steering committee announced our name: Chicago Area Computer Hobbyists Exchange - CACHE. Now since that is pronounced "cash", there were some interesting, unanticipated consequences when people started writing out dues checks ($10) for the treasurer. He told them to make out their checks to CACHE - verbally, of course. Guess how they wrote the word. Second unanticipated consequence - he could still deposit the checks!

I saw the magnificent first issue of the publication of the Southern California Computer Society magazine. The cover in color, glossy pages, professional printing, a variety of articles (which I didn't have the opportunity to read), and a surprising abundance of advertising. Most amazing.

However, I would urge other groups NOT to try the same thing. Two reasons. One, the hobby will be able to support only a relatively limited amount of advertising. We now have two magazines in the field. I doubt that the field will be able to support more than three magazines selling ads. I wouldn't be surprised to see at least one more commercial venture start. Second reason - and much more serious. The SCCS will soon find that they cannot say things that need to be said. It is extremely difficult to criticize any manufacturer or supplier when he is, or potentially is, an advertiser. Only the most strong-willed editor who is also highly respected by everyone in the field can hope to be able to say what needs to be said. Even then he has to be careful.

Your publication is doing a great deal to help interest groups get started. CACHE formed because of the Micro-8 Newsletter, and others appear to be getting underway. One difficulty that most of these groups will likely have after their first few meetings is deciding, "What to do next?" I have enclosed a number of suggestions that I prepared for the CACHE steering group. I hope that these may be of use to others. I would urge groups to do different types of things at different meetings. If the group is large enough, they should have two or three sessions, "clinics," running in parallel. Each one might be scheduled for 50 or 80 minutes (allowing 10 minutes between clinics). These types of activities have been used very successfully by the various groups within the National Model Railroad Association at their meets. The National has one convention each year (2700 went to Dayton, Ohio, last summer for five days), the 14 regions usually have two conventions a year, and the divisions may have monthly meetings.

There are many similarities between these two hobby groups. Many different kinds of interests can be accommodated under the same "umbrella." Both hobbys attract very interested people with a wide diversity of backgrounds. Some of these people are extremely knowledgable or skilled in many or a few areas; others have lots of interest but near zero knowledge or skill. Both have major problems of standards to allow interchange. The NMRA by setting up good minimal standards many years ago eventually got equipment from different manufacturers to be able to work together. This led to the tremendous commercialization and growth of firms supplying the toy train market as well as the hobby market. The computer hobby will be different in this aspect, at least partially, because of the already existing market for commercial systems. However, I would predict that a hobbyists association, if one is successfully formed nationwide, could have a major impact on computers for the home. This market potentially far exceeds the commercial markets that the IBMs and CDCs currently envision. I would also predict that these same types of companies will not be the ones to develop and successfully address this market. The history of organizations argues too strongly against it. Just look at Xerox, for one example.

Incidentally, looking at the proliferation of organizations, newsletters, etc., we are experiencing, I cannot help but make comparisions with the National Model Railroad Association. It has about 25,000 members whose dues are just now going to $10 per year. Some regions charge dues of $2 - $3 per year. I live in a region that has free dues - convention registration fees cover the costs of its slim publication and mailings. There are two commercial publications in the field with circulations of about 100,000 as well as a few much smaller special interest group publications. Members of the NMRA receive a monthly publication of about 40 - 48 pages per issue containing much useful information. Information costs are much more reasonable as compared to what we seem to be experiencing. Maybe this is a benefit of having a national organization (which has only one full time employee and an editor who receives a pittance).

There are great dangers in organizing too soon and in a hobby group made up of volunteers overorganizing - but I still can't help wondering when we will have our first national convention. If anyone is interested, they might want to talk to a former president of the NMRA and the present editor of the NMRA BULLETIN, Whit Towers, 171 So. Layton Dr., Los Angeles, Calif., 90049.

Yours truly,
Chuck Douds
Charles F. Douds

MEETING ACTIVITIES FOR COMPUTER GROUPS

LECTURES
Best for famous person, historical narrative, etc. Very sensitive to public speaking ability and training. Can easily turn off a group if too many lectures are scheduled.

CLINICS
Usually less formal and smaller group than a lecture. More than one clinic goes on at the same time. A given clinic can be repeated in a schedule that allows most to get to all the clinics they are interested in. Topics can be most anything. Greatly enhanced if a handout is provided, even if it is just a list of key points. Handout should include author's name and the date. Use of slides or flip charts are usually very effective. If hardware is used or demonstrated, you often need a very small audience or TV camera system to be effective. Very important for host to check up on needed screens, projectors, electrical outlets (are they powered? where are light switches?), and other such details.

DEMONSTRATION ("HALL") CLINICS
Construction, assembly, measurement, and operation techniques demonstrated on an on-going basis. The "author" simply sits at a table doing his thing, talking about it, and answering questions as people stand around - free to come and go as they wish. Can have several in one room or located in halls.

PARTICIPATION CLINICS
The audience - or a significant part of it - gets their hands or heads into the topic with the author helping individuals out after showing them how. Good for such things as lessons on programming or introductory circuit design. Requires very careful preparation and testing of materials by the author. Participants may be required to sign up beforehand so adequate materials can be prepared. Don't call it "participation" if only a very few people can participate!

CONSTRUCTION CLINICS
The audience builds a piece of equipment. They sign up and pay for materials beforehand and are told what tools to bring. Author makes up kits and shows how to build them step by step. Prior testing is a must to insure that the most naive can finish in alloted time. Author (and helper) has to be prepared to troubleshoot completed devices. Good for building logic probes, simple power supplies, etc. Vital to check out facilities beforehand - suitable tables, power outlets, etc.

WORKSHOPS
Experts work with others on special problems such as de-bugging equipment participants bring in, designing special interfaces, etc. May have an audience observing but they probably should be roped off.
Can also have discussion workshops, such as developing a chart comparing characteristics of kits. Output of such workshops might become clinics, publications, or "standards" (e.g., for a local computer network), etc.

TOURS
Auto or bus tours to manufacturers, big computer installations, or home set ups. Often best done in the evening. Obviously, careful pre-lanning and time scheduling are required.

TAPE-SLIDE PROGRAMS
Many of the above activities can be worked up into a packaged program recorded on audio tape with accompanying slides. Because of the lack of a human being doing the talking, a higher standard of production is required than for live clinics. Many details become very important and have been pretty well worked out for amateurs by other organizations such as the National Model Railroad Association. This is an excellent and highly popular way to preserve and widely disseminate good clinics. Note that mediocre live clinics become terrible tape-slide clinics.

SWAP SHOPS & AUCTIONS
Anything from a corkboard with 3x5 cards to a big flea market. Live auctions can be a lot of fun with a good auctioneer. Silent auctions can move a lot of goods without much interference to other activities. Host organization may take a cut (typically 10%).

CONTESTS
A lot of people like them, but what form would they take in the mini-computer hobby? While they can provide an incentive to improve designs and techniques, a major problem is to keep them from getting out of hand in terms of skill or money demands. When this happens, they become just spectator events. In a hobby, a major goal of contests should be to encourage active participation in various parts of the hobby.

BUSINESS MEETINGS
These should be minimal in time with most of the work being done by steering groups, etc. However, procedures should be maintained such that a clique can be over-ruled or thrown out if necessary. (You are never close-minded, secretive, or not doing things in the best interests of the group, of course!) But do NOT over-organize. Any hobby organization always seems to attract organizing types - who are probably frustrated in their jobs. The hobby is computers; it is not setting up committees for everything, or rules, regulations, and procedures inappropriate for an organization of volunteers. Do set up committees - but only as needed to ensure that things get done - or to keep the organizational-types busy. Keep the big business meetings short and to the point.

Dr. Charles F. Douds
381 Poplar St.
Winnetka, Ill. 60093
5 December 1975

I really didn't introduce myself when I subscribed to the NL a year ago, or say much about whatever interest I might have in small computers. Well, I'm a 59-year-old chemist with a long-standing hobby interest in electronics which I'm just recently beginning to pursue more actively. So far my only exposure to the digital side of it has been to take a course in digital techniques using the Malmstadt-Enke text and lab. equipment and to do a fair amount of reading over the past couple of years. I've had no experience in software or programming aside from writing a few programs for a H-P 9820A calculator.

As a chemist I'm interested in modular chemical instrumentation, interfacing, and experimental data processing, particularly statistical analysis, insofar as this can be done by a microcomputer. I'm inclined to agree with Sumner Loomis, who remarks in the current NL that many statistical calculations run on large machines could be handled efficiently by a scientific calculator, and perhaps with better understanding of what is to be done. Statistical programs can be mightily misused if blindly applied. Along this line (the use, not the misuse, I hope!) I've programmed the 9820A to handle 3-way analyses of variance. There's a minor bug yet in the program, but it runs! A 4-way program, though, filled all the H-P's extended memory, leaving no room at all for data, but I believe it could be run in one pass by leaving out a lot of bells and whistles I tried to put in. So one of my interests is in doing this sort of thing on a micro -- that is, to get at small cost the computing power of a good programmable calculator, such as the H-P 9820 or 9830, but not necessarily with the convenience of a high-level language. As I mentioned, I'm weak on software, but do believe this could be done effectively with assembly language and a good arithmetic package.

I'm also interested in analog computation (which still isn't an obsolete art) and have one of the old Heath 15-amplifier jobs. The notion of interfacing this to a micro and doing hybrid computing is enticing!

very truly yours

P. O. Box 723
Rockland, Maine 04841
28 December 1975

Norman F. Stanley

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

How would you like to experience the unique feeling of having, through simple stupidity, destroyed $250 in integrated circuits and wasted 300 hours of labor? Better yet, do all of the above less than 24 hours after your Mark Eight has had the last bug removed and is functioning perfectly?

It is really easy. All you have to do is interface your Mark Eight and Digital Group TVT to a TV set and not use an isolation transformer. The sinking feeling in the pit of your stommach after the bright spark and the LED front panel goes dark rivals any roller coaster ride Cony Island has to offer. Beleive me, I know!!!

DO NOT TRY TO USE AN OLD TV SET AS A MONITOR WITHOUT USING AN ISOLATION TRANSFORMER.

The failure mode in my instance occurred when the hotside of the 115 VAC became the ground for the Mark Eight. Evidently the resulting transient shorted the power supply pass transistors. As the -9 volts rose to -25 volts, the 5 volt line rose until a tantalum capacitor in the TVT acted as a crowbar and popped the 7 ampere fuse. The -9 volt line fuse never blew. This disaster carried away all 32 1101 RAMS and all but six TTL packages. As a tribute to Bill Godbout, my 8008 survived! After two months, I now have the system up and running again; however, rather than junk the whole mess an start anew with fresh packages everywhere, I took the time and effort to troubleshoot the entire mess IC by IC. This, in retrospect, was the wrong way to go as it took longer to get the system fixed than it did to build it in the first place by a factor of ten.

By January I should have 5K RAM, 1K EPROM, cassette interface, TVT, paper tape, and a Model 15 TTY running. I also will have implemented the stack register as discribed in one of the early Computer Hobbyist articles. A 1K operating system that, unlike the Digital Groups, performs a useful function is about 65% complete. When finished it will allow keyboard programming and editing, core display on the TVT, cassette loading, and a program to move blocks of code around inside core. After this is completed I will work on an ingenious project suggested by my partner, Chris Sidener, to get wives to agree to buying more computer junk. Essentially it amounts to writing some computer aided education programs to teach the kids math and reading skills. Imagine how much money will be forthcomming when Mom learns that the kids can be silenced on rainy days after school by loading a cassette into Daddy's toy and throwing a switch? Might even be able to promote a terminal and floppy disk if we get a lot of rain...

Hints & Kinks Dept: To adapt Digital Group package #1 software without the entire expansion of I/O ports (and there are a tremendous amount of errors in the hardware discription, especially the backplane chart) consider the following direct changes to achieve I/O port designation compatibility:

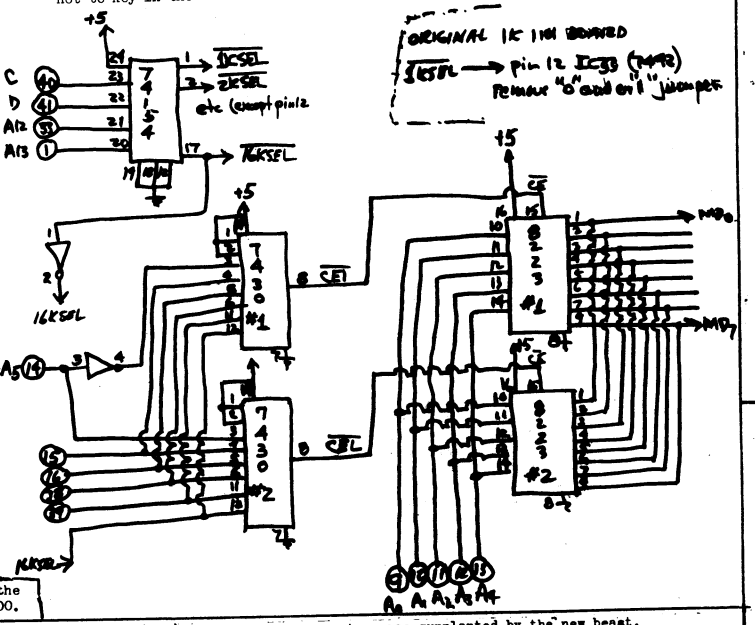
a)To make front panel output port 7 (137_8),cut foil between pin3 IC10 and pin 1 IC9. Connect jumper from pin 3, IC10 and pin 9, IC9.

b)To make TVT output port 6, cut existing jumper from A,B,C, or D on output board and connect A,B,C, or D to pin7, IC12.

Memory expansion circuit for original Mark Eights:

The original Mark Eight that we all know and love so well as a capability to address only 4K words rather than the 16K that the 8008 CPU is capable of directly addressing. The expansion cure is straight forward and simple since the additional bits of the Hi address are brought out to two of the 41 lines. Referring to the Address Latch/Manual Board schematic, the Hi address is decoded by IC10 and IC11. The additional two bits necessary to address 16K are labeled A12 and A13 and are brought out to lines 33 and 1 respectively. The other Hi address bits are labeled A,B,C, and D. More appropriately they should be labeled A8 through A11. The following schematic uses a 74154 to decode the Hi address and provide a K select pulse that is low when the designate K of memory is addressed.

The schematic also indicates how two 8223 ROMs may be placed at the upper limit of memory if desired as a bootstrap loader. You have no idea how neat it is not to key in the cassette dumper program prior to playing with you machine!



David W. Johnston, P.O. Box 3781, Washington D.C. 20007, reports that according to the October issue of Microcomputer Digest the price of the 6800 has dropped 60% to $69.00.

Glad to hear that you will probably continue the newsletter. It provides a valuable service that I doubt could be provided by any other publication. I've been meaning to write for some time to ask you to please continue the newsletters, but have my finger in perhaps too many pies.

I have no vidio monitors or keyboards for sale. (Bill Godbout & Solid State Music got most of them.) But anyone that is waiting for a letter from me & still wants a reply just drop a postcard; my usually spotless desk is getting cluttered & some may have got lost.

As to the BASIC games. I have a pile of computer listings nearly two inches thick. I had intended to let my computer (8800) do the printing for distribution, but that may be a while off yet. So I am open for suggestions. If & when I do get my system up I should be able to send: Paper tape, or TCH cassette, or Sutling cassette, or paper listing.

More on the newsletter: It sure would be nice to have a local computer club but in a town of 5,000 people 200 miles away from a population center you are the best thing there could be for guys like me.

PS TO ALL THOSE WHO HAVE BEEN BURNED BY KIM1 MICRO MART

I am sending a complaint on them to:

Better Business Bureau (Regional Office)
Federal Trade Comission (Regional Office)
Direct Mail Marketing Assn (Mail Order Action Line, 6 East 43rd St., NY, NY 10017)

Please don't give up the ghost. Here is an envelope & $6.

Yours,
Keith

Keith L Kendell
295 E 500 S
Vernal, Ut. 84078
(801) 789 0328
12 Dec 75

I recently completed a Mark 8 for Marshall U and with the help of Steve Winick (Silver Springs, MD) that unit is now operational. Being lazy I added two 1702s to a full 1K Mark 8 memory board so I wouldn't have to toggle in so many test programs. The additions were wire wrapped to added sockets and using connections on sockets installed for some 1101s when they were found to be bad. I am now interested in a unit for myself and have obtained an old Dura 1041 to use as I/O. Since that unit (used to type this letter) is transistorized using negative logic on 0 and +12vdc, I would appreciate learning if anyone has interfaced same as I/O to a TTL system. Control and data logic level coversions and Selectric to ASCII (particularly insertion and removal of upper-lower case codes - hope to use full capabilities) hardware information would be most helpful. In return I have details on a wiring correction to make the Microswitch 645NI-4 solid state keyboard ASCII compatible and breadboarding circuits in Bugbook format to test both 1101s and 2102s. I am also interested in the PERMEC floppy. Does anyone have controller circuits for such a floppy disc system and is anyone interested in pooled purchases to bring the price down?

Keep up the great work with the Newsletter.

Dr. Arthur R. Lepley
Building 2 Room B2-26
NIH
Bethesda, Maryland 20014

Sincerely,
Arthur R. Lepley

COLEGIO SAN ANTONIO ABAD

BOX 729 - HUMACAO, PUERTO RICO 00661
TEL. 809 / 852-1616

December 26, 1975

Dear Hal,

Thanks much for your quick reply to my letter last April. It looks like Cabrillo H.S. is well-computerized by this time. The Classic was demonstrated in P.R. last July--looks very good. I read all the Micro-8 newsletters through several times each one. They are so loaded with goodies.

My TVT-I was working very nicely except that the cursor sometimes began to jump wildly around the screen. When the mods started showing up in the newsletters I started hacking the hardware to add scroll and UART to tie it to a Baudot TTY and Cassette. I would like to set up a cassette with a TVT for the students to receive announcements about school affairs or other messages. This should attract more attention than bulletin board notices. But right now the whole thing is in pieces for lack of time to finish its conversions.

The basic reason for the above situation is that last summer we had the singular good luck of being able to get a used PDP-8/I with dual DECtape, H.S. Paper Tape Reader & Punch, 4K memory, Edusystem 30, & TTY. All for the very attractive tag of 2K bucks. One DECtape has an open on Timing Track of the tape head, the TC08 had one bad IC, and a few other little things were wrong here and there but now it works fine business. So, of course, the interest in microcomputers was supplanted by the new beast. What I now am working on is to hook a TVT with UART in parallel to the TTY on the PDP-8/I and install the TVT in the front of my science class room. I have most of the DEC educational programs and will be using as many as possible in the classes. I find that a number of these programs can be improved especially in instructions and print-out format.

The main reason for writing a letter is to ask for something, of course. Could you punch out for me a copy of your Cabrillo Test Grader? I have gotten some things from DECUS but they are extremely slow this time--an order was placed last June and still has not arrived. Also, if the Micro-8 newsletter is continuing could you include a request for a used TU56 DECtape transport or tape head that somebody may be able to give us or sell? Also in our transactions for the PDP-8/I the DECtape Library software got lost and we would be interested in getting a copy of that for a nominal charge. Thanks much for helping on this.

Sincerely

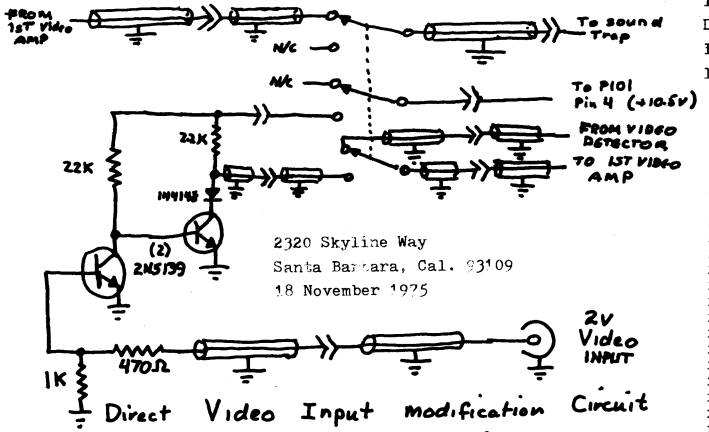
Felix N. Neussendorfer

Bro. Felix Neussendorfer

A SIX YEAR BOYS COLLEGE PREPARATORY SCHOOL FOR BOARDING AND DAY STUDENTS

Charles Floto, 267 Willow St., New Haven, Connecticut 06511, ordered the Processor Technology Video Display Module for his Altair because he likes having the display addressed as memory rather than as anI/O device. Besides, it adds 1K to his 500 words of memory.

I just finished interfacing my 128 ASCII character keyboard and the Digital Group TVT board to my 'orginal' Mark-8 computer. I found that the TVT board outputs a video signal at TTL voltage level, so I added a 27 ohm resistor between it and ground to bring this voltage level down to 2 volts, a video input standard according to Don Lancaster's TVT Cooktook. I accquired a Sears 12" AC/DC BW TV set (Model 5033) and modified it for direct video input. This modification circuit is shown below.



Direct Video Input modification Circuit for Sears Model 5033 (12" BW AC/DC TV SET) by L.L. Plate

I glued a small piece of Vectorboard with copper bus strips to the shield lid of the 3rd PIF AMP so that the piece is perpendical to the set printed circuit board with the copper side next to TP101. I drilled two holes on the shield box side next to a jumper which is removed to open the video detector stage. I removed C201 and relocated it on the glued piece, thus it can be rewired more easily according to the above modification circuit. I located my direct video input receptive and DP3T switch, (RF shielded and grounded), about three inches from the TV side controls. Due to added capacity in shielded cables, the sound trap has to be readjusted. It may be possible that the sound quality will be improved like in my case!
As shown in my circuit, three events occur when the switch is flipped to the video input stage. The video detector stage is cut out and the offset voltage regulator is cut in; the source voltage which is tapped from the P101 pin 4 is cut in to the regulator; and the sound trap is cut out. The 470 ohm resistor is necessary to drop the input voltage to about 1.6 volts (white) and the regulator brings it up to 3.4 volts. The sync level is 1.8 volts at the 1st video amplifier base. It requires two 2N5139 and one 1N4148 to match. Credit should given to Don Lancaster as I merely applied his so-called (?) theories with excellent results!

There is an error in my Mark-8 interconnection scheme. The -9v line should read MM instead of MA. A guy wired his bus to my scheme as is and I apbngized to him!!

The Digital Group TVT software works okay but not to my satisfication. Thus I wrote a new TVT software which lets me to use line feed and carriage return keys as intended, yet they can be overridden by pressing underline key to select Greek letters in leiu. Hence all characters can be ulitized, except for DEL which is used to home and erase the 'slate'. I am using Input Port Ø and Output Port 1 for awhile. This program is listed below.

IMPROVED SUDING TVT/KEYBOARD
PROGRAM by L. L. Plate

```
xxxØØØ  ØØ6   MVI A, -1      Send DEL to TVT to home
xxxØØ1  377
xxxØØ2  123   OUT 9          Output to Port 1
xxxØØ3  22Ø   SUB A
xxxØØ4  31Ø   MOV B,A
xxxØØ5  123   OUT 9
xxxØØ6  ØØ6   MVI A,SPACE
xxxØØ7  24Ø                  256 Spaces output to TVT
xxxØ1Ø  123   OUT 9
xxxØ11  22Ø   SUB A
xxxØ12  123   OUT 9
xxxØ13  Ø1Ø   INR B
xxxØ14  11Ø   JNZ xxxØØ6     Loop if all spaces not outputted
xxxØ15  ØØ6
xxxØ16  xxx
xxxØ17  Ø46   MVI E,-4Ø      Set space counter to 32
xxxØ2Ø  34Ø
xxxØ21  Ø36   MVI D,Ø        Clear subset flag
xxxØ22  ØØØ
xxxØ23  1Ø1   IN Ø           Input from keyboard
xxxØ24  Ø74   CPI 2ØØ        ASCII code in?
xxxØ25  2ØØ
xxxØ26  14Ø   JC xxxØ23      Not yet, loop back
xxxØ27  Ø23
xxxØ3Ø  xxx
xxxØ31  Ø74   CPI -1         One in, DEL code?
xxxØ32  377
xxxØ33  15Ø   JZ xxxØØØ
xxxØ34  ØØØ                  Yes, go home and erase all!
xxxØ35  xxx
xxxØ36  31Ø   MOV B,A        Save input code
xxxØ37  3Ø3   MOV A,D        Subset flag non-zero?
xxxØ4Ø  Ø74   CPI Ø
xxxØ41  ØØØ
xxxØ42  3Ø1   MOV A,B        Restore input code back
xxxØ43  11Ø   JNZ xxx117
xxxØ44  117                  Yes, Greek subset to be output.
xxxØ45  xxx
xxxØ46  Ø74   CPI 337        Underline code?
xxxØ47  337
xxxØ5Ø  15Ø   JZ xxx136
xxxØ51  136                  Yes, set subset flag non-zero
xxxØ52  xxx
xxxØ53  Ø74   CPI 215        CR code?
xxxØ54  215
xxxØ55  11Ø   JNZ xxxØ74
xxxØ56  Ø74                  No, skip the CR space countdown
xxxØ57  xxx

xxxØ6Ø  ØØ6   MVI A,24Ø      Load space code to be
xxxØ61  24Ø                            outputted
xxxØ62  123   OUT 9
xxxØ63  22Ø   SUB A
xxxØ64  123   OUT 9          Output to TVT
xxxØ65  Ø4Ø   INR E          Count one space off
xxxØ66  11Ø   JNZ xxxØ6Ø
xxxØ67  Ø6Ø                  Space counter still non-zero
xxxØ7Ø  xxx
xxxØ71  1Ø4   JMP xxx126     CR simulated now,
xxxØ72  126                  Jump to reset this counter and flag
xxxØ73  xxx
xxxØ74  Ø74   CPI 212        Line feed code?
xxxØ75  212
xxxØ76  11Ø   JNZ xxx117
xxxØ77  117                  No, skip LF space countdown
xxx1ØØ  xxx
xxx1Ø1  Ø16   MVI B,-4Ø      32 spaces to be outputted
xxx1Ø2  34Ø
xxx1Ø3  ØØ6   MVI A,24Ø      Space code
xxx1Ø4  24Ø
xxx1Ø5  123   OUT 9          to TVT
xxx1Ø6  22Ø   SUB A
xxx1Ø7  123   OUT 9
xxx11Ø  Ø1Ø   INR B          Count one space off
xxx111  11Ø   JNZ xxx1Ø3
xxx112  1Ø3                  More spaces to go
xxx113  xxx
xxx114  1Ø4   JMP xxx14Ø     Skip to the delay timer
xxx115  14Ø
xxx116  xxx
xxx117  123   OUT 9          Output keyboard code to TVT
xxx12Ø  22Ø   SUB A
xxx121  123   OUT 9
xxx122  Ø4Ø   INR E          Tick off a space
xxx123  11Ø   JNZ xxx13Ø
xxx124  13Ø                  Space counter still non-zero
xxx125  xxx
xxx126  Ø46   MVI E,-4Ø      Reset to 32
xxx127  34Ø
xxx13Ø  ØØ6   MVI A,Ø        Clear subset flag and A
xxx131  ØØØ
xxx132  33Ø   MOV D,A
xxx133  1Ø4   JMP xxx14Ø     Skip to the delay timer
xxx134  14Ø
xxx135  xxx
xxx136  Ø36   MVI D,-1       Set subset flag non-zero
xxx137  377
xxx14Ø  Ø16   MVI B,-3       Delay timer to debounce keyboard
xxx141  375
xxx142  Ø26   MVI C,Ø
xxx143  ØØØ
xxx144  Ø2Ø   INR C
xxx145  11Ø   JNZ xxx144
xxx146  144
xxx147  xxx
xxx15Ø  Ø1Ø   INR B
xxx151  11Ø   JNZ xxx142
xxx152  142
xxx153  xxx
xxx154  1Ø4   JMP xxxØ23     Return for more inputs
xxx155  Ø23
xxx156  xxx
        END
```

The xxx 'prefix' represents any high address chosen by the user.

This program is excellent for 256 byte memoried computers and to add scrolling to the program will require 256 bytes for data storage.

I would like to hear from PACE bitters regarding setting up an information exchange.

An ancient Mark-8 humbug,

Laurence L. Plate, Jr.

Marlowe Cassetti, 1011 Devonport, Seabrook, Texas 77586, (713) 474-2923, announces the formation of the NASA-JSC (Johnson Space Center) Computer Hobbyist Club. They have over 30 members ranging from interested novices to computer experts (and even have an astronaut who is very active). Marlowe is president....so contact him if you're interested. He also mentioned that the ACM (Association for Computing Machinery) is having it's national conference in Houston in Oct '76 and they would like to have a session on the home computer/computer hobbyist. (We've noticed their interest at the local level also.)

Andrew W. Lepp, 1517 Alta Vista, Owosso, MI 48867 hopes to see honest user appraisal of products and more hardware in the newsletter. He finished a TVT-1 about 8 months ago and is looking for a computer kit to invest in and would like to see a side by side comparison of the 8080, 6800, and PACE in the newsletter.

Gary L. Dickman, Box 41, Colby, KS 67701 says that where he lives, population is very sparse making any computer clubs very hard to start and at this time, non-existant. A friend 200 miles away and Gary seem to be the only ones in the western half of Kansas doing anything with minicomputers at the hobby level. His Mark-8 is still inoperative due to some small parts on backorder. He plans to have a keyboard, octal loader, keyboard monitor, 7-segement front panel, TVT, card reader, cassette i/o and a modem.

Chuck Burton, 2309 Hazel Avenue, Dayton, OH 45420 has a Sphere system running nice and is very impressed with the Digital Group flyer on DG Systems. He believes they have the best thought out system yet!

Lee Teicheira, 1239 Stewart Ave., Chico, CA 95926 guesses that a large number of participants are not located near one of the user groups and the NL is their lifeline to the People of our hobby, and that is what it is all about.

David Metal, 28 Splitrail Place, Commack, NY 11725 tried to obtain a TVT-II board thru John Bottoms, is still waiting for it to arrive, and wonders if anyone else received a board from him? He wonders if anyone can tell him the best computer system to go for? He will soon buy an Altair 8800 unless someone comes up with some better ideas. He has a tape interface up and running using a cassette and the standard amateur TTY equipment. He has tied together a model 15, a model 14, and a teletype memory (from a ham article) and can record and recover almost error free. His next project is a UART converter to the computer code and would appreciate any information anyone can supply.

Desmond J. Carron, 10541 Farnham Drive, Bethesda, MD 20014 wants to thank all NL contributors. He can truthfully say that his equipment would now be collecting dust on the shelf in an inoperable condition were it not for the encouragement he extracted from the many letters, comments, etc. from newsletter participants. He has a Scelbi with 16K, and a keyboard, TVT-II and both TCH and Scelbi cassette interfaces neither of which seem to work as designed.

Tate Yoshida, 2951 S. King Dr., Chicago, IL 60616 has a Mike-2 up and running and is getting the parts together for a MOD-80.

Bruce Kendall, 334 A Camille Ct., Mountain View, CA 94040 provided a clipping from the Nov. 20, 1975 Minicomputer News describing a hardware multiply/divide option to speed up 8080 micros. Order information from Gnat Computer, 8869 Balboa Ave., Suite C, 92123.

Jerry Scott, 812 East 91st St., Kansas City, MO 64138 (816) 765-6470 has a Mike-2, KSR-15 TTY, a non-functional TVT-1 and a Digital Group Keyboard. He has available five CDC Model 601A 7 track ½" mag tape units for around $250 to $300 each depending on shipping method.

Richard A. Peterson, 9004 184th Ave. E, Sumner, WA 98390 would like to see us advertise a bit more to expand the number of members (yea gods, its hard enough keeping up with everything the way it is!). He dosen't expect in-depth technical articles but just likes to read the B.S. from other guys, since most of us find few people in our daily lives that we can discuss our hobby with (in detail).

Don Stevens, PO Box 159, Sheboygan Falls, WI 53085 is trying to form a group called the Wisconsin Area Computer Hobbyists. Interested parties should contact him.

Wallace T. Many, 62 Glendale Ave., Middletown, CN 06457 (203)632-1240 home (203)236-4511 business is seriously thinking of an 8080 based system and wonders about IMSAI. It's been a month since he ordered MITS manuals (with a charge card and a request for priority mailing, yet).

Bruce Segal, 64 Summit Crescent, Montreal, Quebec, Canada has an Altair 8800, TCH cassette interface, 12K of MITS dynamic memory, Proc. Tech. 3P+S interface, prom board, and a MITS cassette interface. He is still waiting for the MITS extended BASIC and monitor-assembler which they say should be delivered by DEC. He is interested in some sort of mass storage device and the Digital Group Phi-deck controller.

Howard Spence, Port Moody Senior Secondary School, 300 Albert St., Port Moody, B.C., 939-6656 enclosed information on a Fairchild F-8 PC board and parts package put together by R-A-E Industrial Electronics Limited, 1629 Main St., Vancouver, B.C. V6A 2W5 (604)687-2621. He is going to check into it more carefully and report his findings.

John D. Turner, NAVSEEACT Japan, Box Five, FPO Seattle, WA 98762 has an Altair 8800 with kybd/crt/printer/modem. He is very happy with quality material supplied by the Digital Group/mits/Proc. Tech./Cybernetics/ Godbout. He is stationed in Japan near Tokyo (U.S. Navy) and train fare to the electronics buying area in Tokyo is $5.60 round trip, so complete kits are important to him. He is very unhappy with Maury Goldberg of Micro-Mini-Mart having experienced inadequate instructions and assembly details and problems with solderability on their PCboard plating. He will soon supply a calculator program for the Altair/CT-256/µ-mini-mart calculator interface. He would like help on inputting and getting displayed on CT-256 following FCN's 0, 1/X, and needs help on string programming also.

Darrell Collins, 8638 E. Solano Drive, Scottsdale, AZ 85253 writes: "I have a Mark-8 that has been running for more than a year now, even much to my surprise! The system was completed in Oct of 74 but did not run until December. I had trouble with IC's (Poly Pacs), PC boards (Techniques sure didn't put much glue on the foil), banjo harness (cost effective but a real pain) and misc. learning stuff encountered with a new product. The chip was a $100 special from Martin Research and such a bargain I eventually bought two of them. Ha! I tend to agree with others in the newsletter about keeping things low-cost or free of cost for software. My machine is currently housewatching. It controls heating, cooling, serves as a burgler and fire monitor and will auto dial fire and police with recorded message and monitors yard moisture conditions controlling an auto sprinkler system to water when required. I plan to package the whole mess up and stuff it into a wall someday. When it comes to putting the thing to use, anyone will soon learn that building the sensors and interfaces will take more time than building the darn machine. With all the activity going on, several things need comment:
1) EVERYBODY should use edge connectors and sockets! The mere fact that hobbyists are building the machines will indicate a long 'learning' time. A person should be able to work on his own problems, not hasseling with hardware configurations too.
2) A big limitation of the Mark-8 is the I/O. Sudding had a modification scheme and expansion was discussed in RE but no one has made boards available. Why? How many Mark-8's are limping along without enough I/O? It takes a week to lay out an interfacê, two weeks to etch and drill and a week to stuff it and fix the thing. It does not have to fancy as long as it provides the 8 input and 24 output ports.
3) When a company makes a unit for general use, they should be able to give detailed interconnection information to various systems. I ordered a Monitor-8 PROM system from Mini-Micro-Mart in May, it was delivered in late October (enough said about that already) with only a unreadable mimeograph of layout and functions. I spent 1½ days on the telephone trying to anyone about how to connect the thing to the Mark-8. I still have not succeeded. That's $90 spent and I have no return for it yet. Can anyone out there help me?
4) What happened to Rogers Baudot to ASCII interface? Southwest Tech was to make boards and have proms available but only much silence to date. (Robert Cook has boards, see NL #12)
4) I do not like MITS policies about a) information about the 8800 bus b) outrageous prices for software c) indifferent attitude. Contrast this with those of Sphere Co. Talked on the phone nearly a full hour and they told me everything I asked about and more. There was such a difference, I persuaded the company I work for to purchase a Sphere rather than an 8800.
6) Will or can there ever be a BASIC for the Mark-8? I get the feeling that no one is working on it and the 8008 may pass into history the same as the Stanley Steamer."

Darrell Collins

R. E. Smallwood, 20 - 12 St. N. W., Calgary, Alberta, Canada T2N 1Y3 has yet to choose a micro-computer yet but thinks the MOS Tech 6502 looks good. He would like to know if anyone has info on the Ohio Scientific Instruments boards/parts advertised in the DEC. 75 Byte. He says that Tri-Tek, Inc. in Phoenix has the Intersil CMOS FDP-8E chip at $65 and are hoping to have a kit for it in '76.

Jeff Lesinski, 1241 Staley Road, Grand Island, NY 14072 reports that he is still building a 2K Mark-8 and TVT-1 and just ordered an Altair 8800.

David Cook, Apt. 417, 5541 S. Everett Ave., Chicago, IL 60637 (312)PL2-4280 has just finished building a Martin Research MIKE-2 using a Creed TTY and interface designed by Bob Cook. He will soon have 5K of RAM and is trying to get Cook's monitor running. He is planning to build the Computer Hobbyist graphics display as soon as possible so that he can begin programming games using a TV screen as a graphics display.

William J. Serviss provided the following roster for the Mid-Michigan Micro Group
Michael Martins, 805 Dryer Farm Rd., Lansing, MI 48917 489-9740
Karl Coulman, 2412 Heights Ave., Lansing MI 372-4619
Claude M. Watson, 1922 Autumn Lane, Lansing, MI 48912 489-9323
Philip A. Dawdy, 711 Ridgewood, Lansing, MI 48910 882-5946
Bruce Smith, 519 N. Logan, Lansing, MI 48915 485-6504
William Serviss, 13121 Tucker Dr., DeWitt, MI 48820 669-3179 has breadboard 16K 8008 with stack, mod 15 TTY, PTR, Suding cassette, keybd (Honeywell)
Larry Miller, 826 Halstead Blvd., Jackson, MI 782-9706 has Mark-8, Creed TTY, SWTP kbd, Suding Cassette, TVT-1
Bob Forkner, 7052 W. Howe Rd., DeWitt, MI 48820 626-2104 has breadboard 2K 8008, mod 15 TTY, Suding Cassette, keybd
Joyce and Marvin Church, 4307 Mar-Moor Dr., Lansing, MI 48917 482-9452 have Altair
Randy Rouse, 2500 E. Mt. Hope Ave., Lansing, MI 48910 487-8299 has Mark-8
Lee Hodges, 109 Wilson St., DeWitt, MI 48820 669-3258 has Mark-8 and Mod 15 TTY
Fritz Roth, R#7, Carbondale, IL 62901 (618)549-1370 has MIL Mod-8
Rick Schultz, 611 Dexter, Lansing, MI 393-9438 has MIL Mod-8, Creed TTY, Suding Cassette, SWTP kbd, and TVT-1
Daniel Herrick, 1214 Frederick St., Owosso, MI 48867 723-3264 has Altair 8800

Russ Gladstone, Gladstone Electronic, 1736 Avenue Road, Toronto, Ontario M5M 3Y7 (416)781-6811 is considering issuing a Canadian Newsletter or information exchange to assist the local groups across Canada. Anyone interested should write him.

My current projects are a PT Video Monitor and the Digital Group 128-key ASCII keyboard. I am hoping that the two will satisfy my I/O needs for quite awhile. The total cost with a purchased monitor will be about $930 which is much more than I ever planned on. The size of display and invertable background really sold me. I will let you know how they work out.

I have evaluated the IBM 5100 computer for office use and find it very expensive, with a rather simple BASIC language, and with a very tiny screen. However, since my group is composed of non-computer science types (all have MS or higher) with rather limited abilities at programming I have recommended purchase on the simple economic justification that it will pay for itself the first year and save an additional $16K. It is a very easy machine to use. My five and seven year old sons were able to use it to plan games in about 15 minutes.

Best of wishes for a successful and happy new year.

Sincerely,

George W Rompot

216 Collier Dr.
Springfield, IL 62704
1 Jan 1976

John Burger, 1440 Leopold St., Jasper, IN 47546 is trying to acquire some data on the Intersil 6100 microprocessor and plans to get a system built around it in the near future. He has an 8008 up and running almost a year now and is using it to control a modified Suding TVT. He converted the 32 x 8 display to 64 x 16 and also added a cursor. The only problem is that it practically needs his 8008 just to control it. Semiconductor Specialists, O'Hare Airport, Indianapolis, IN (317)243-8271 has the Intersil 6100 for $52.50 - that's cheap.

Bill Risch KØWH/1, 103 Spit Brook Rd., Apt. A12, Nashua, NH 03060 is presently involved with a group attempting to organize a hobby group known as the "New England Computer Society". At present they have no mailing address for the club but he'll forward it once a slate of officers have been elected in Jan. 76. At present the membership exceeds 100 people and splinter groups are already forming depending on the area of New England, and type of hobby computer. Clubmembers presently represent New Hampshire, Mass., Rhode Island, and Conn.

Vern Brannon, 3671 McElrath Drive, Dayton, OH 45432 would appreciate any information on the IMSAI 8080 micro-computer. He is being transferred to Germany in February and wants to buy a micro-computer kit to work on in his spare time. He likes the 8080 processor and would like to have it as the heart of his system. He recently went to a MITS seminar in Cincinnati at a cost of $12 and was impressed but in a negative way. How could they say it is not a sales pitch and charge $12 is a mystery to him. The only thing he got out of it was a look at an 8800 that he had only seen pictures of before. Therefore, if the IMSAI is of near equal or better quality, he'll buy it.

Enclosed is my vote of confidence for the new six issues of the newsletter.

The half size format is a little taxing on the eyes but its good to see more material. Enough listings of mem bers for the time being, lets have more news and solid material.

1) Latest word I have on the Sphere system. Dr. Larry Schramm at Johns Hopkins Hospital finally got his system after a string of broken promises and misrepresentations. This $2,000 + system preassembled, arrived misassembled with an inoperative PROM, no Basic language. The cards were wedged into the case with pieces of styrofoam - no card cage. Dr. Schramm told me that his CPU chip was running too hot to touch. He also said if he didn't get satisfaction quickly he would return the system and demand a refund.

2) The Atlanta Area Microcomputer club is off and running. Boards are being cut for a TVT- II, main and memory board at $25. Get this,one of our members has modified and given a working demonstration of his SWTP TVT II that is able to display 64 fully legible characters per line. He does it by interleaving the memory pages, No modification required to the TV other than specified by SWTP. All that is required is two additional IC's some point to point wiring and a few capacitor changes. The rest of the TVT functions as usual. The only problem is that a complete written copy of the modifications is not yet available but hopefully we will have them by February - he is going away on a work-study program now.

3) People interested in the Atlanta Club can contact me at the above address.

4) There is a good article in the November issue of Modern Data on CRC codes for those who want to understand the principle of this kind of error correction scheme.

5) If any one out there is interested in buying my TVT-I based computer terminal I am interested in selling it, make an offer. It includes Microswitch Hall effect keyboard with enclosure (alone worth over$150) ,twelve feet of cable connecting keyboard to the display chassis, built in acoustic coupler 300 baud, TVT I display mounted in a Lamb case, audio cassette data record and play back., TVT I control switches. Complete documentation on all the above - and it works. I am making new purchases and want to recover some of the money I had spent on this original setup. It won't do me any good gathering dust and may be will help someone get started in computing without a lot of hardware hassles. No, I will not give it away. Please include a SASE if writing or call me at 404-377-4907 (not collect).

Thats about all for now, hope to see the next Micro 8 out soon.

Yours truly,

Gary Alevy
Emory University
Box 21393
Atlanta,Georgia 30322
November 30,1975

Gary Alevy

I sure hope that this is the 351'st subscription request! Your newsletter is a great service to those of us that are interested in home computers and to lose the newsletter before there is a viable substitute would be an unfortunate event. Whether the rapid rise of local club newsletters represents this substitute is moot. Reliance upon local groups to desseminate information of general interest may result in simply denying the bulk of the information to most people... Anyway, thank you for a fine newsletter!

I'm a graduate student in computer science at New Mexico State University and have drifted into this hobby through an interest in programming. I have an Altair 8800 with 12 K attached and another 8 K on order. My I/O is a DECwriter II and an Omnitec 703A acoustic coupler that allows me to access the school's 360/65: an intelligent terminal with fantastic local capability. My software consists of MITS BASIC and assembler, Processor Technology Co's assembler (software package #1 - FANTASTIC bargain), and a subset of NELIAC.

JAMES E. RANDALL
609 SOUTH JORDAN
BLOOMINGTON, INDIANA 47401

December 1, 1975

Micro-8 Computer User Group Newsletter

Here is a response to Vol #1's requrest for evidence of interest in Volume #2. Besides the renewal I wish to indicate what has been of most interest and use to me.

The names of other hobbyists have the least personal payoff and it is like looking for a needle in a haystack for a person in a low-population-density area. Two other aspects are very useful in helping me get reasonable equipment quickly and being able to put it to use. For example, the NL is the only reference to Solid State Music's Altair boards that I have seen. In less time than it takes for a reply from the great company I have had two filled orders plus a personal answer to a technical question. Their 4K memory is a best buy; the sockets, the neat DIP switch to select higher address bits and waiting cycles (not needed), and the chips themselves. The connector pins are not gold-plated however. I bought their I/O kit and was surprised to see that it included not only sockets (as mentioned) but also the IC's too...at a cost less than the MITS prototype board which will not handle 24-pin DIPs.

Only through the NL can I understand what happened to the Suntronix Sanders scopes...an order still in limbo. As with others I have had phenomenal delivery from James Electronics, generally within a week. I have gone to their DIP connectors and ribbon cables as an inexpensive way in and out of the Altair as suggested in the NL.

The E & L Instruments Bugbook III is an absolute must for the 8080 user. The Scelbi editor with 8080 code is so well documented that it is easy to modify it for local needs.

I want to pass along some small comments of the kind I like to see in the NL, the kinds of things not warranting space in BYTE. 1) As MITS now points out, the Altair front panel letters wear off quickly. Protect the new panel with a non-glossy spray. 2) An early project should be an I/O board with 3 LED displays out, one for Hi, Lo, and contents, and other things. I value the experience of working with latches, 7-segment decoders and drivers but now feel that the Hewlett Packard BCD displays with built-in latch and logic (from James Electronics) are not as expensive as they look.

3) Experience with the Altair front panel (use and trouble-shooting) is invaluable, but after one develops a ROM monitor and LED displays and keyboard input the panel only supplies a reset and a start/halt function. As an alternative one could buy the Altair CPU board, the Solid State Music Memory, mount a mother board on aluminum angles between two chassis containing power supplies. 4) I have sprinkled a few NOP's in new programs, then inserted a RST which called a typeout of all registers. This has helped greatly in debuging. A hardware halt on a specific address would be most helpful...it should be relatively straight forward to do.

What am I going to do with all this crud? The usual things: control the world, build an electric grandmother, fry fish, and play. If I thought it would help I would also build a prayer wheel asking for a cheap diskette unit.

Applause for Jim Brick's letter in vol.1, #12. For all the people that have been asking for free BASIC you might mention that the People's Computer Company Vol.4, #2 (Sept.) contains the first installment of a BASIC translator series that shows you how and gives code. The ACM Special Interest Group on Minicomputers says that it is publishing a bimonthly newsletter. Vol.1, #1 was dated July 1975, contained 13 pages, had very little content, and was (as of Dec.1) the only issue sent out. Let's send them hope but hold back our money. For fun and games with computers I would suggest subscribing to Creative Computing, P.O.Box 789-M, Morristown,NJ 07960 ($6.00, $8.00/student, regular subscription) or the PCC.

Prosper,
John E. Wahl
P.O. Box 3491
Las Cruces
NM 88003

December 1, 1975

Enclosed please find a check for six dollars ($6) for the first six issues of volume 2 of the µ-8 Newsletter. As an active member (Corresponding Secretary, Group Purchase Chairman, Newsletter staff) of one of the larger local clubs (San Diego Computer Society) I feel compelled to make the following comments regarding your future.

1) "Hot news tips and rumors" - You have a unique opportunity to do this. Other publications are constrained by lack of contacts, advertising (Byte, Interface), and/or space (Personal Systems).
   Tip - Robert French of Radio Shack is a member of the North Texas Club. He is in charge of Radio Shack's 6800 based kit to be available in March for approximately $200. You can contact Lannie Walker, President, Computer Hobbyist Group of North Texas, for further information.
2) "Reader's comments regarding suppliers" - Clubs are not set up to do this. We can not publish individual comments (particularly negative) due to space and/or advertising limitations. We seem to be limited to publicizing group buying opportunities for our members.
3) "Summarize local club newsletter material" - We all have a problem here - µ-8, PCC, Byte, local club newsletters. As you are aware by my cover letter with your complementary copy of Personal Systems for November, I am trying to promote a free exchange of information at the publishing level. There is bound to be some duplication in how we each use this information, but feel this is necessary since we each reach a slightly different set of readers. I hope most of this information will remain in the public domain, although I foresee a problem with those who pay for articles and copyright their publications.
4) "Local contacts and group formation" - This is one of my few criticisms of your NL. Although you have been instrumental in forming many local groups by publishing individual letters, I feel you should become more structured in this area by writing a regular column and/or publishing a complete mailing list of all known groups.
5) "Group purchases" - We certainly appreciate any publicity you can give us, particularly on large items such as the LSI-11 order. You have provided invaluable leads for suppliers. I am concerned about protecting our suppliers by not publicizing our prices to individuals. For example, John Burgoon of Solid State Music offered 1702A's in µ-8 NL #11 at $14. His group purchase price is now $6.00! The San Diego Computer Society welcomes participants in our group purchases subject to the following conditions: club membership ($2.50 per year, includes newsletter), handling fee (1%, $1.00 minimum), postage, and California State sales tax (6%). If substantial out-of-state business develops, I will apply for a tax number so that out-of-state participants will not have to pay sales tax.
6) "Future accomplishments" - A) Your format of essentially reproducing readers' letters in a newsletter is unique and needs to be continued. B) You need a series of regular features such as review of club newsletters, group purchases, group addresses, hardware and software reviews, etc. C) You provide a unique forum for special interest groups, e.g., a MIKE user's group. I am in no position to publish another national newsletter, nor do I feel the public should be asked to finance another one. However, I hope that I can find time to write a one-page column on MIKE systems for distribution in the µ-8 NL.

New subject - I welcome and appreciate your offer of additional interface and other information on the MIKE system from yourself, John Ford and Richard Lerseth. I hope to go to press about December 20th, in order to complete mailing of the MIKE information packet before the postage increase. Therefore, I need your inputs by December 15th. I have collected over 100 pages thus far, and will photo-reduce (a la µ-8) where possible to cut down on paper and postage costs. If there is sufficient demand and interest, I hope to set up a clearinghouse operation patterned after the Digital Group where royalties (1¢ per page per copy) can be offered to contributors. More on this later.

Sincerely yours,

Jim Forschon

December 9, 1975

James W. Forschon
3949 Mt. Everest Blvd.
San Diego, Calif. 92111

I/O-PROM-UNIVERSAL CARD DESCRIPTION

Part No. IO-2 From SOLID STATE MUSIC

This card was designed to provide an I/O interface for the Altair 8800 computer. Additional pads have been provided to facilitate the addition of EROMs, a UART, RAMs or other circuits as required. The basic kit provides the necessary parts for the implementation of two I/O ports. Other kit options are being prepared for supplementary functions such as TTY interface, video moritor interface, etc.
Figure 1 shows the layout of the committed areas for the I/O and the uncommitted areas for the other circuitry.

I/O Card Connections (refer to figure 2)

Jumpers - If this card is used for I/O functions a few connections have to be made on the board with jumpers first.

1) Connect "SM" (U5, pin 12) to the 1k ohm pull-up resistors (5 pads - 1.25" to the right of SM and up 0.625").
2) Connect "SO" (edge conn. pin 45) to "SOUT" (U6, pin 5).
3) Connect "SI" (edge conn. pin 46) to "SINP" (U6, pin 9).
4) Connect "OUT STB" (5 pads) to pin 13 (DS2) of all of the 8212 ICs that will be used as output ports.
5) Connect "INP STB" (5 pads) to pin 13 (DS") of all of the 8212 ICs that will be used as input ports.

Port Address Selection - The Altair computer can drive up to 256 I/O ports by decoding eight of the sixteen output lines from the Intel 8080 CPU chip. The 8-line address decoder on the Universal Card can enable eight consecutive port devices in the range "0" to "256". As shown in Figure 4, U3 drives up to eight ports in a group range selected by jumpers (or DIP switch) at U7. If you want to select ports 0 thru 7, then the code for U7 is "00000" and no jumpers are needed for U7 (pins 12 thru 16 connected over to pins 5 to 1). Note: U7, pin 16 is the most significant bit and U7, pin 12 is the least significant bit of the group address for the ports.

U7 selects group address					U3 selects port address within a group		
B	B	B	B	B	B	B	B
MSB				LSB	comes out on 8 pins		
Binary Value 128	64	32	16	8	4	2	1

Now to connect the addressing circuit to the port, place a jumper from pin 1 (DS1) of the 8212 IC to pins 1 thru 6 or pins 8 thru 10 depending on what address you want that port to be.

Types of Ports - For additional information on some port configurations that can be constructed with the 8212 IC, get a copy of "8212 Eight-Bit Input/Output Port....Microcomputer Peripherals-Schottky Bipolar" pamphlet from Intel Corp., 3065 Bowers Ave., Santa Clara, CA

1K/2K Prom Card Connections (refer to figure 3)

Jumpers, If this card is used for ROM functions a few connections have to be made on the board with jumpers first.

1) Connect "SM" (U5, pin 12) to pin 47 (edge conn. pin near "SI").
2) Connect the data outputs of the 1702 type ROM to the appropriate data input lines (edge connector pins) of the Altair bus.
3) Connect the address lines (edge conn. pins) A0 to A7 to the appropriate address control pins of the 1702 type ROM.

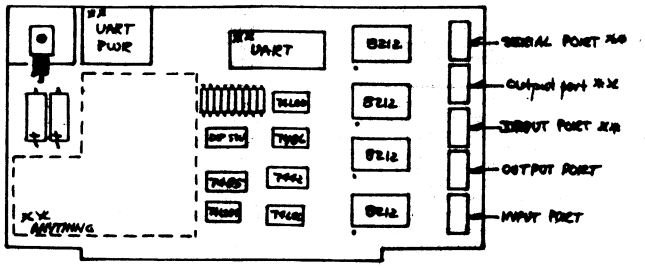
Speed Considerations. The Altair Computer uses a 2MHZ clock to time all its functions which gives a single cycle period of 500 ns. If the Prom/Rom you are using has an output data access time of greater than 500 ns, then a slow-down circuit has to be built on the unused part of this card or the computer will not be able to read the rom. (See appendix 1 for a slow-down circuit.)

Rom Addressing. The addressing of Rom is similar to Port selection described above.

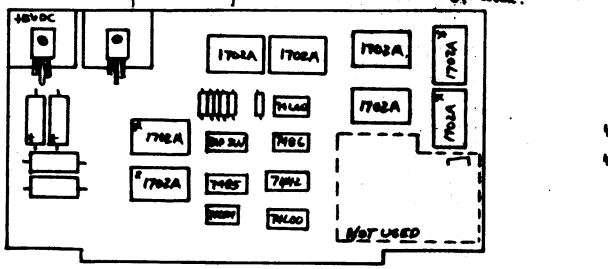
U7 selects the starting page					U3 selects up to 8 pages (Roms)		
B	B	B	B	B	B	B	B
Binary value 32,768					1024	256	
MSB						LSB	

Connect the outputs of U3 (pins 1 thru 6 and 8 thru 10) to the chip select (CS) pin of the Rom. Note: U3-pin 10 is the enable for the first page, U3, pin 9 is the second page enable, etc.

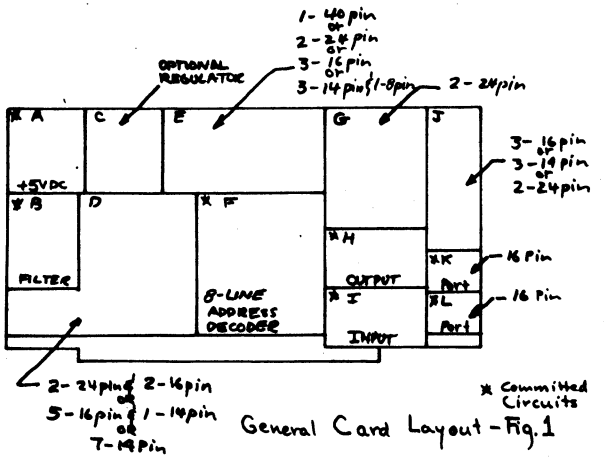
Parts List U1-SN7485, U2-SN74L04, U3-SN74L42, U4-SN7486, U5-SN74L00 U6-SN74L00, U7-Dip Switch, U8-Intel 8212, U10-Intel 8212



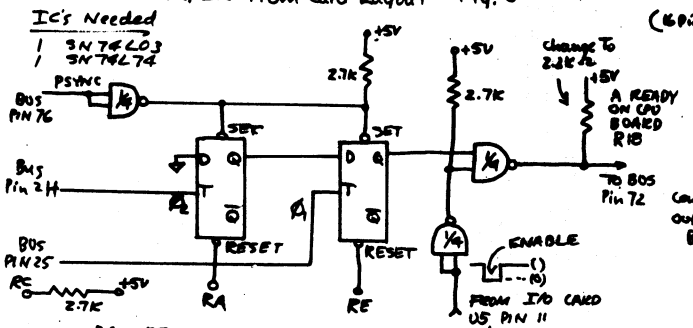
I/O Card Layout - Fig. 2



1K/2K Prom Card Layout - Fig. 3

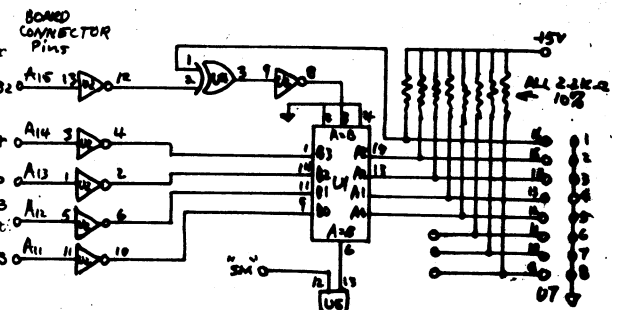


General Card Layout - Fig. 1

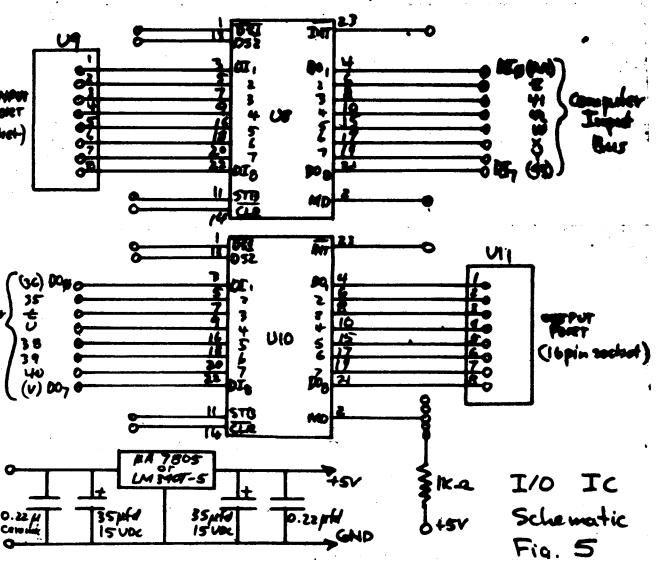


RA	RE	NUMBER OF WAIT CYCLES ADDED	
GND	GND	NO WAIT CYCLES	≤0.5μs Fast PROM
RC	GND	" " "	
GND	RC	ONE WAIT CYCLE -- 0.5μs Added per byte	≤1.5μs PROM
RC	RC	TWO WAIT CYCLES -- 1.0μs added per byte	

Slow Down Circuit Appendix 1



8-Line Address Decoder Schematic Fig. 4



I/O IC Schematic Fig. 5

THE LAST MEETING OF THE SB COMPUTER GROUP BEHELD AN INTERESTING PRESENTATION OF THE JUPITER II MICROCOMPUTER BASED ON THE MOTOROLA M6800 MICROPROCESSOR CHIP. THE UNIT WAS PROFESSIONALLY PACKAGED WITH INDIVIDUAL REGULATORS FOR EACH CARD, A HEFTY POWER SUPPLY, HIGH QUALITY CARD CAGE, HIGH QUALITY RIBBON INTERCONNECTS, BURNED IN ICS, ETC., ALL THE WAY DOWN THE LINE. WHILE DEFINITELY NOT THE CHEAPEST (APPROX $1800 IN ONES), IT LOOKS QUITE PROMISING FOR THE HOBBIEST INTERESTED IN QUALITY PARTS AND WIRE WRAP FLEXIBILITY. DENNIS BROWN, DESIGNER OF THE JUPITER II AND ALSO PRESIDENT OF WAVETECH,INC., GAVE THE 3 HOUR PRESENTATION. THEY EXPECT TO

DELIVER IN FEB 76, AND SOFTWARE WILL BE AVAILABLE.

THE RANDOM ACCESS PERIOD RESULTED IN NOT MUCH MORE THAN RANDOM EXCHANGE OF IDEAS AND INFORMATION, WHICH IS ENCOURAGED IN THIS GROUP.

FORMAL ORGANIZATION SEEMS EMINENT AT THIS TIME, AND SHOULD BE SERIOUSLY DISCUSSED, AS THIS DOCUMENT WAS WRITTEN IN THE NICK OF TIME (7:20 TONIGHT), AND A LITTLE BIT OF ORGANIZATION NEVER HURT ANYONE.

IN THIS DOCUMENT I HAVE INCLUDED A LIST OF ALL PEOPLE AND OTHERS WHO ATTENDED THE FIRST OF THE SECOND MEETING. PLEASE CHECK TO SEE IF YOUR NAME IS ON THE LIST ON THE WALL; IF NOT, ADD IT. IF SO, PLEASE BE SO KIND AND PUT A CHECK NEXT TO YOUR NAME. IF NOT, YOUR NAME WILL BE PURGED FROM THE LIST.

ALSO INCLUDED FOR YOUR INFORMATION ARE DATES FOR ALL FUTURE MEETINGS THRU 1976.

GLENN A. MCCOMB

Meeting Dates for all of 1976:

Jan 6	Feb 11	Mar 10	Apr 14	May 12	Jun 9
Jul 14	Aug 11	Sep 8	Aug 13	Nov 10	Dec 8

Santa Barbara Computer Group Newsletter

Volume 1, Number 1

ARAKI, LENNIE	165 SYLVAN DR	GLTA	964	1842
BAUMAN, CARL	404 ELLWOOD BEACH DR #14	GLTA	968	3774
BELLOMY, FRED	BOX 2400	SBAR	963	8055
BIRD, JAMES	7560 DUNHAMPI	GLTA	968	5092
BOLAND, RALPH	131 SANAT ANA PLACE	SBAR	967	1771
BOLLAY, DENNY	240 LAS ALTURAS	SBAR	963	5960
BRAINERD, DAVE	2117 PINN	OXND	487	6905
CHAPMAN, ANDY	22729 IRONDARK DRIVE	OT	714 956	7183
CYR, DON	800 PALERMO DRIVE	SBAR	687	6029
DOLAN, BOB	800A MIRAMONTE DR (WORK)	SBAR	965	3011
FISHER, GLEN	122 CARDINAL AVE	SBAR	964	5307
FULLER, TOM	BOX 13727	SBAR	964	8212
GEORGIOV, BILL	FRANCISCO TORRES #731	SBAR	685	2029
GORRELL, JOHN	400E PEDREGOSA	SBAR	963	7570
GROVE, JOHN	282 CARLO DRIVE	GLTA	964	6527
HAMILTON, SCOTT	157 SAN ROSSANO	GLTA	968	7890
HOBIN, CHUCK	4185 LA LADERA RD	SBAR	964	7177
HOGG, DOUG	2216 CASTILLO	SBAR	687	5668
HOLMES, JIM	6272 PARKHURST	SBAR	967	6725
JEFFRIES, RON	767-C CYPRESS WALK	GLTA	968	9905
JOHN, W.	227 PEBBLE BEACH DR	SBAR	968	3955
JOHNSON, BILL	551 CHADWICK WAY	SBAR	964	2944
JOHNSON, BRION	1413 ALTA VISTA ROAD	SBAR	966	1346
JOHNSON, DAVE	621 PARRA GRANDE	SBAR	969	2477
JOHNSON, GREG	180 LOMA MEDIA RD	SBAR	966	4628
KAEMPF, LARRY	342 RAVENSCROFT DRIVE	GLTA	964	2203
KIMBERLEY, JOHN	5041 YADLE AVE	SBAR	967	2066
KREYER, LARRY	4 MARINE CENTER	SBAR	963	2071
LICHTJAN, FRED	314 EVANSHIRE	SBAR	964	4953
MCCOMB, GLENN	210 BARRANCA, APT D	SBAR	965	4306
MCCORD, JIM	330 VEREDA LEGENDA	SBAR	968	6681
MCELROY, RALPH	BOX 507	GLTA	968	7404
MCLOUGHLIN, KEVIN	1033 NEWTON ROAD	SBAR	963	8344
MCNIEL, DANNY	1343 LA MANIDA	CARP	684	3777
MCNIEL, RUSSELL	1343 LA MANIDA	CARP	684	3777
MOLINE, ROY	155A SAN ANGELEO AVE	SBAR	964	1339
PENROD, DOUGLAS	1445 LA CIMA ROAD	SBAR	962	3337
PETERSON, RICHARD	383H CANNON GREEN DR	GLTA	968	8795
PICKENS, JOHN	206 RAVENSCHOFT	GLTA	964	7981
PICKLES, GREG	766 CYPRESS WALK	GLTA	968	0356
PLATE, LARRY	2320 SKYLINE WAY	SBAR	965	1466
RICKS, GARY	209 E PEDREGOSA	SBAR	962	8540
RUDNICKI, SUE	312 ELLWOOD BEACH DRIVE	GLTA	968	1741
RUNYAN, GRANT	1146 NIRVANA ROAD	SBAR	962	7734
SCHIFERL, GLENN	6549 CAMINO VENTUROSO	GLTA	964	6013
SCHIFERL, RALPH	6549 CAMINO VENTUROSO	GLTA	964	6013
SINGER, HAL	4350 CONSTELLATION	LMPC	RE5	1596
SHERICK, MIKE	1112 ACACIA ST	VAFB	734	3723
SMITH, BARRY	235 PACIFIC OAKS #205	SBAR	968	0327
SMITH, ERIC	529 CHADWICK WAY	SBAR	967	9804
STAPLETON, GERRY	967 ST MARYS LANE	SBAR	964	2739
STEKL, BOB	BOX 14002	GLTA	961	2216
STEPHENSEN, JOHN	383H CANNON GREEN DR	GLTA	968	8795
TEPPER, STEVE	BOX 14330	SBAR	961	3896
TROUT, DANA	52 MENDOCINO	GLTA	968	7679
WILK, MIKE	4384 VIA PRESADA	SBAR	967	3045
WINTER, FRED	813 EAST ANAPAKU #1F	SBAR	962	8534
WHITE, ROBERT	1008 HAWTHORN ST	VAFB	734	3797

SOUTH FLORIDA COMPUTER GROUP

A brief note to inform everybody about the formation of the SOUTH FLORIDA COMPUTER GROUP - with the main purpose of being a microcomputer information gathering and exchange organization.

Group activities are being coordinated by:

Terry Williamson
P. O. Box 430852
So. Miami, FL 33143
(305) 271-9909

The correspondence coordinator is:

Roberto Denis
11080 N. W. 39 Street
Coral Springs, FL 33065
(305) 752-7067

No formal newsletters are planned, there being many good ones in existence. (Have you seen SCCS INTERFACE? It's great!) But as developments break, or as group buys occur, a FLASH bulletin will go out to all other computer groups and clubs. There are no membership dues, and all So. Florida computer freaks are welcomed.

We would like to know or kept informed of any other group notices. SOUTH FLORIDA COMPUTER GROUP

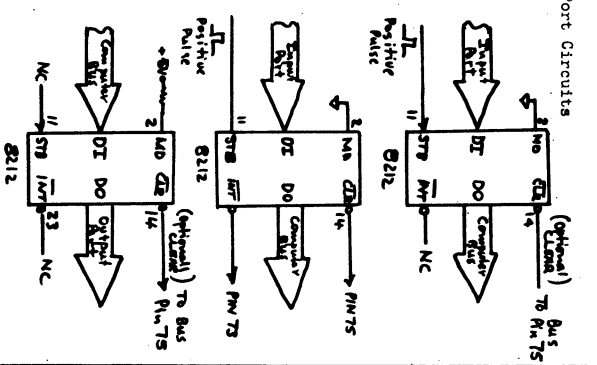
(Please note that our name was prematurely published in PCC as South Florida, we are one and the same.)

8212 I/O-2 Cont. Some Simple Port Circuits

The 8212 IC is an 8-bit latch with a special mode control circuit and tri-state outputs. With pin 2 (MD) of the 8212 connected to ground the IC will act as an input device with data loaded in to the latch of the trailing edge of a positive pulse to pin 11 (STB).

Using the above input port circuit and connecting pin 23 (INT) to pin 73 of the connector bus, a port with interrupt is created. When the CPU is interrupted it will execute the 8-bit machine instruction on the bus after it has finished its present instruction. If you do not have a special interrupt system, the interrupt will place a RST-7 instruction into the CPU.

The output port function is selected by connecting pin 2 (MD) to a logic one. The 8212 will be loaded with data from the bus when it is addressed by the computer thru pins 13 and 1.



Dear Computer People:

Peoples Computer Company has been promoting programming in BASIC. Several companies have produced inexpensive microprocessor chips. One of these, Intel has made the Intel 8080 chip. Currently available versions of BASIC take 4 to 8k words of memory.

PCC is working on a TINY BASIC. It will be oriented to:

+ *kids having fun*
+ *teaching BASIC*
+ *games*
+ *elementary school arithmetic*
+ *mathematical recreations*
+ *send us your ideas....*

It will run on an Intelec 8/Mod 80 or an ALTAIR 8800. It will use 16 bit (double word) interger arithmetic. Its design will be public so that others may reorganize the I/O and mathematical subroutines for floating point. Specialized functions may be added by the user.

The proposed syntax and grammar for TINY BASIC is described in the PCC newspaper Vol 4 nos. 1 and 2. The design philosophy is to keep it simple and use as little memory as possible. Speed is sacrificed.

PCC would greatly appreciate any help and ideas. Sixteen bit (double-word) addition, subtraction, multiplication, division, decimal-binary and random number routines are needed.

Sincerly,

Bernard R. Greening

Bernard R. Greening

Dear Hal and John,

1. BUGS IN MARK-8: I would like to know if anybody else has these problems:
   a. While not in Jam mode: interrupt momentary while a halt instruction is in the switch register, then turn Jam on, change the switch register to anything but the 3 halt instructions--in our Mark-8, this causes the 8008 to get out of halt and start running again, the instant the switch register is changed.
   b. If the 8008 waits about .4 seconds on an input instruction, this causes reg. B to be loaded from the value of reg. A before the input instruction about 90% of the time(after about 15 min. warmup); similarly, if 1.5 sec., then it loads D from B. Has anybody had trouble with registers being changed during an input instruction on the 8008?
2. Notes on other problems:
   a. 30A surge rated CROWBAR BLOWN before a 5A fuse, when 2 heat sinks touched, causing crowbar to get directly across large capacitor--I measured the short circuit current with scope across .05 ohms--about 80A.
   b. CROSSTALK IN TTL CIRCUITS: apparently few people are aware that you can get in trouble with using long wires in TTL circuits (remember Terry Ritter's 10-foot bus?), because changing current in one wire can induce a voltage in other wires (mutual inductance)--no coils as in a transformer necessary--all it takes is a "snarl" of 2-foot (more, or sometimes less, depending on number of wires, and current through them) and you've automatically got problems.
3. Techniques:
   a. HARDWARE MEMORY TEST: I've used a very simple method of testing memories--without the need for good memories for the test program or even the 8008 in its socket--using a pulse generator/oscillator to run the Deposit signal via one of the external switch contacts. (555 short-proofed by resistor could be used.)
   b. SHORT CIRCUITS--I've developed a method to actually trace/track down them (not merely hunt over the entire board), based on a sensitive voltmeter (could use op-amp and vom).
4. I have working:
   a. HARDWARE: ASYNCHRONOUS I/O PORTS that automatically make the 8008/or device wait until the other is ready (up to the point where loss of data would be inevitable for an input device). With these ports, the program merely inputs, stores data in memory, loops back to input again (no delay loops),etc.--hardware automatically controls timing. These could be adapted to any computer that can be made to wait, and can also be used as normal ports (like on the original Mark-8). I have interfaced these to:
      i. Suding-compatiable tape interface with automatic hardware serial/parallel conversion
      ii. Keyboard input interface
      iii. TVT-I output interface that runs 180 characters/sec. with an asynchronous queue element (FIFO) (=2 7475's, ½7474, NAND gate, and R-C delay) or 120 characters/sec. without (i.e., using only latches/etc. data paths already present in Mark-8). This enables my loader/monitor to display any 128-byte halfpage in octal in 3 sec. These asynchronous ports are a later version of my circuit in issue 10,p41-43 of Micro-8 without the "speed limitation" mentioned there. The Mark-8 end of the circuit uses 3 or 4 gates (additional) for each I/O port converted to asynchronous mode and 2 IC's overhead--in addition to what is already in the Mark-8. The device end uses a flip-flop (usually ½7474) to interface the asynchronous control signals, and whatever circuits are needed to synchronize with the I/O device's environment.
      A future version will allow more than 1 device to be used at the same time by allowing interrupts during the I/O wait, 1 or 2 other modes.
   b. 8008 software stack routines that require no hardware modification and push, pop registers D through L at the expense of regs. A and B (could be modified slightly to push/pop any subset of C through L, or with 256 more memory bytes, destroy only 1 register)
   c. monitor that allows the user to see what he is replacing as he types octal bytes in.
   d. BCD,"BASE100" Addition,subtraction,conversion between each other and ASCII programs for 8008

Thomas R. Amoth
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12/12/75

Sincerely yours,

Thomas R. Amoth

Thomas R. Amoth

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NAPERVILLE, ILL. 60540
312 357-3021

11-8-75

CHANGES IN PRICE LIST OF 9-20-75

RS-232 connectors, 25 pins, male or female	each	4.50
8 conductor cable, 2 are heavy power leads, 50 feet with male RS-232 conn and case on each end (2 1/2 lb)		11.00
Jim Fry's 4K 2102 board, not drilled	POSTPAID	13.00
Roger Smith's Baudot to ASCII and ASCII to Baudot boards 2 boards.		available 12/1/75
2102-1's as in 9-20-75 list, same discounts		2.25
1702A's as in 9-20-75 list		18.00

ADDITIONS

Connectors - Mated pairs	24 pins 1.00 ,	36 pins 2.00
8008-1 Intel - limited number		15.00

USE OF CREED TELETYPE WITH VARIOUS MICROCOMPUTER SYSTEMS

The hardware interface included with the Creed model 75 teletype accepts TTL level signals and generates the correct signals to drive the message and control solenoids that control the printer and paper punch, as well as converting the keyboard switch outputs to TTL level signals. Three TTL signals must be supplied for the printer, one to provide the serial bit stream to send characters, one to enable or disable the printer and one to enable or disable the punch. In some rare applications it may be disirable to use two additional bits to control the message sender or fast form feed function. The control bits must remain in the desired state, i.e. they must be flip flop outputs rather than pulses off of a time shared bus.

Many microcomputer systems as supplied in their basic form do not have input or output ports. An output port is a number of flip flops and control circuits to load the flip flops from a time shared bus when an output instruction is executed. An output port is a number of gates and control circuitry which gates a number of signals from the external world onto a time shared bus when an input instruction is executed.

In order to use the Creed teletype you must have at least three bits on an output port and six bits (one if it is rewired for serial output from the keyboard switches) of input port. For a number of systems as follows, I can provide some basic information on implimenting input and output ports if your system does not have them.

1. Mark 8 - This system came with input and output ports .
2. RGS - I have drawings of input and output ports as actually used with a Creed.
3. Altair 8800 - Basic version does not have Input or Output ports. I can provide a drawing of a basic circuit to be built on a wire wrap board or other board of your choice, or you can buy I/O board from Altair or Processor Technology.
4. MIKE2 - Basic version does not come with Input or Output ports. I have a complete information package for building the required input and output ports and the Creed interface on a MIKE2 breadboard. The package includes schematic, parts layout, wiring list and instructions. The design includes an 8 bit output port so that if desired the MIKE2 can be used with the Creed monitor in place of the MIKE 2 console board and monitor. All that is then required for an operational system using the Creed monitor is a CPU board, a PROM/RAM board and a Breadboard with the Creed interface built on it. The information package is free on request to Creed owners, $1 to others.

NEWS RELEASE

MIKE 2 MANUAL

An extensive Manual has been prepared for the *MIKE 2* microcomputer offered by Martin Research. Consisting of over 150 pages, the Manual contains complete circuit diagrams and theory of operation for this 8008-based computer. Included also are software listings for *MONITOR 8*, a versatile operating system for the computer. Provided free of charge with the *MIKE 2*, the Manual is also available separately for $25.00 (a certificate worth $15.00 towards purchase of a system is included).

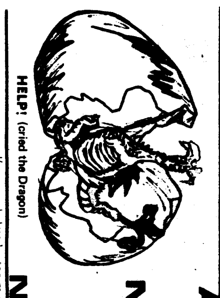
The *MIKE 2* microcomputer features a modular structure. A typical system includes a calculator-type keyboard with six large LED digits; a Monitor program in PROM, for easy program loading and debugging; and a crystal-controlled CPU board. Computers start at under $400. An 8080 version, the *MIKE 3*, is also available. The system's bus structure i compatible with these and other standard eight-bit μPs, meaning that accessories--such as the 4K static RAM card--are interchangeable between systems.

Available from the manufacturer and from Semiconductor Specialists.

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

ENCLOSURES: MIKE 2 Manual; Catalog. More Information: Mr. Kerry Berland.

modular micros ⇄ **martin research**



HELP! (cried the Dragon)

ANNOUNCING A NEW NEWSLETTER

A XEROX NEWSLETTER FOR SERIOUS TINY BASIC IMPLEMENTORS. 3 ISSUES FOR $3.00. CONTRIBUTIONS CHEERFULLY ACCEPTED. (SEE PAGE 30 FOR MORE DATA).

I WANT TO SUBSCRIBE TO THE TINY BASIC NEWSLETTER:
NAME: ____
ADDRESS: ____
CITY: ____ STATE: ____ ZIP: ____

New PCC Publications

I'm overwhelmed... too much information to stuff into PCC. Each issue could be all letters, or all games in BASIC, or all machine language stuff about the ALTAIR, or stories about people using computers in schools, or listings of interesting programs or circuit diagrams, or how to buy a personal computer, or energy stuff, or...

And... people are sending us reams of paper about TINY BASIC.

And... for 13 years, I have been accumulating ideas about kids learning how to use computers. In one corner of our office sits a big, clunky Xerox machine. Chug, chug, chug, it grinds out copies. Everyday, I look at it quizically, wondering how to use it in some interesting and creative way.

So... we will crank up our Xerox and start (1) a newsletter called TINY BASIC and (2) a series of booklets called COMPUTERS IN THE CLASSROOM.

TINY BASIC is about building your own BASIC and... maybe... it might grow into a publication about learning how to build your own software for the home/school/personal computer. We will publish ideas and software in the public domain for anyone to use. TINY BASIC will be a sharing thing with explicit permission to use the information in a non-commercial way. We will start modestly, promising 3 issues over the next few months. Bernard Greening is the editor of TINY BASIC with help from Dennis Allison and whoever wants to help.

TINY BASIC, volume 1. Three issues for $3.
First issue: January 1976.

Send your $3.00 to TINY BASIC, P.O. Box 310, Menlo Park, Ca. 94025.

[And! Send us some TINY BASIC stuff to publish.]

COMPUTERS IN THE CLASSROOM will be a series of Xeroxed booklets, mostly about BASIC. Learning BASIC, teaching BASIC, using BASIC at school, at home, wherever. The first booklet is about BASIC in secondary school math. Ideas, problems, games, listings of programs, sources of information, workbook pages you can copy on your Xerox and hand out to your students.

COMPUTERS IN THE CLASSROOM, Book I. Available Jan. 1976.
Xeroxed, 60 pages. $3.00
from PCC Bookstore

P.S. COMPUTERS IN THE CLASSROOM is the name of a University of California extension course that LeRoy Finkel & Jerry Brown & I have "taught" during the last 6 or 7 years at UC Berkeley, UC Davis, UC Riverside, UC Santa Cruz, UC San Diego, UC Irvine, UC Santa Barbara. About 1000 elementary and secondary school teachers have meandered through these courses.

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

FIRST CLASS MAIL

ROBERT BAER
921 LINCOLN AVE.
PALO ALTO, CA
94301

David Schultz, RT #1 Box 396B El Rancho, Espanola, New Mexico 87532, asked us to publish this paragraph from his latest letter: "I am currently working on a device which will allow a microcomputer to generate continuous speech output. I am toying with the idea of developing this into a marketable form (probably PC boards and/or a kit). However, I don't know how many hobbyists would want a 'talking' computer. Would this be a useful form of output? Is there much interest in such a device? Please drop me a note to voice your opinion. If I don't get any response, I will assume that there is no interest and will stick to a breadboard version for my own use."