

MICRO-8 COMPUTER USER GROUP NEWSLETTER
 HAL SINGER -- EDITOR
 CABRILLO COMPUTER CENTER
 4350 CONSTELLATION ROAD FEB 10, 1976
 LOMPOC, CALIFORNIA 93436 VOL. 2, Nr. 2

I'm pleased to be able to mail out another news-
 letter in less than a month. In searching for needs
 that the newsletter can fill, rapid dissemination
 of the chatter from participants regarding what is
 going on has turned out to be the most important.
 To that end, several changes will be made. 1) News-
 letters will continue to be 12 pages as this one is
 so they can be mailed out on a 10¢ stamp. 2) We
 will try to mail out nine or more of these smaller
 issues, depending on the final number of partici-
 pants and costs. Two small issues cost a little more
 than one big one but I can get them out faster by
 keeping them small. 3) I'll try to reduce the in-
 terval from one copy every one and a half months to
 more like one every three to four weeks. 4) Polish
 will be sacrificed for speed. EYTE, 73, and Inter-
 face can provide the gloss and the heavy technical
 stuff, and we'll continue to print your cards and
 letters. Please share your experiences with the
 rest of us. It will really speed the printing pro-
 cess if you can type your letter as you would like
 it to appear, and squeeze all the white space out
 of it. It doesn't cost any more to print black
 than white.
 Thanks. Hope to hear from you.

HAL SINGER

News From the the digital group

January 10, 1976

po box 6528, denver, colorado 80206

The Clearinghouse. The Clearinghouse is in a holding pattern for
 a few more weeks. The order rate on our systems even without advertising
 was more than we expected and we could not spare the people to get
 the Clearinghouse produced. There is also some contention among Group
 members to shut down the Clearinghouse and refund everyone's money
 which would be far and away the easiest solution. However, I still
 believe that it can serve a very useful purpose. Meanwhile, we have
 been lining up two people to handle it on a consistent basis. As soon
 as that is accomplished we will fire it up again and keep it rolling.
 Should these people fall out then we will give up and mail back the
 money.

On to much better news. The Digital Group Systems are off and running.
 Including delivery. We have shipped all the local 8080 orders and
 will continue to work the 8080 backlog on all other orders. We will
 soon be reaching the 100 systems shipped mark and are very close to
 remaining within our "off-the-shelf to 3 weeks" target on everything.
 The new TV Readout is extremely successful and is shipping (until last
 week) at about a 50/month rate. Memories passed the 100 mark long ago.
 The major hangup we have always run up against has been documentation
 production. But we're getting a lot smarter about it. The 6500/6800
 systems CPU cards will begin shipment next week as Dr. Suding has
 finished the last part of the systems manual.

Software. Joe Cimmino has had one of our systems (8080) up for about
 2 months and is actively engaged in demonstrating and selling them
 on the east coast. I was able to hand deliver him his system early
 as IBM sent me to a class in Washington DC. He has been able to
 accomplish a number of things with the system in very short order.
 The first announceable product is the Video-based Monitor-80. He
 took a copy of the package from Robert Swartz (with his permission)
 and converted and enhanced it in less than a week. The kid is fast
 and good. Even impressed Robert Suding (which can be a challenge).
 We will send you a copy as soon as we announce. Remind me if I forget.
 A number of BASIC's and Assemblers, etc. are in the works but there
 are no details until we get a little closer to announcement. The
 software area should soon turn into one of the Digital Group's major
 strong points.

Naive Green, Editor/Publisher of 73 Magazine (73, Inc., Peter-
 borough NH 03458) and the primary force behind the start of
 EYTE, has started an I/O section on microcomputers and peri-
 pherals in 73. February issue had almost 40 pages, and March
 has about twenty. Price is \$10.00 for 1 year, \$17.00 for two,
 and \$17.76 for three full years.

Color Graphics. We have been sitting on 25 kits for color graphics
 since November. However, Robert and everyone else has been completely
 buried in order to get the systems out the door so we were unable to
 produce any software for it that was meaningful. Robert Swartz got
 ahold of his color graphics board in December and immediately began
 telling us that it would not work with his system. We couldn't believe
 it. He finally discovered that his system had an inoperative port on
 it that was causing all the trouble. He is now putting a number of
 versions of color life on his systems. And now that Robert is some-
 what unburied, he has also been able to get Life running on his system
 in both black and white and color. Very pretty.

Phi-Deck. The Economy Co. (which produces the Phi-Deck) sent their
 lead engineer (Jack Breimeir) to Denver for the full dog & pony show.
 I'm afraid we may have overwhelmed him. The demonstration of course
 included a demonstration of the production model of the Phi-Deck
 controller. 300 characters per second with a fully operational
 operating system. Give it a block number and it will give you back
 your data within 20 seconds on a random basis (avg = 11 seconds).
 There are flies in the ointment however. The first is that the Economy
 company cannot deliver the deck as quickly as we would like. They
 have an improved version which we are insisting on which we cannot
 obtain in production quantities until mid-February at the earliest.

I guess I better explain a few more of the details. The standard
 Phi-Deck is a folded-metal deck that has severe mechanical problems.
 These problems are very significant when you wish to interchange
 cassettes between drives (a reasonable thing to want to do) as they
 effect cassette/head positioning. In other words, the error rate
 for soft errors drops from 1 bit in 10⁵ to around 1 bit in 10³ when
 cassettes are written on one drive and read on another. The error
 rate is fair if cassettes are restricted to a single drive - therefore
 the guys who have the original drive will still get some use out of
 it. The Economy company has redesigned the drive and gone to a
 cast-metal headbar which greatly helps to alleviate the problem.
 The capstan is now much thicker and doesn't bend. Heavier parts
 were used everywhere required. Etc. etc. The catch is all these
 improvements are not yet in quantity production. So we wait. As
 usual, we will not announce until we are assured that we can deliver.
 And that means in this case we must have our initial shipment of
 decks in our hands or be satisfied that they will soon be there.
 (Really is a neat system though!)

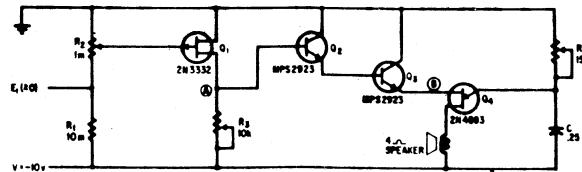
CSs are checked faster with audible voltmeter

By Thomas F. Platkowski
 Dartmouth College, Hanover, N.H.
 From Electronics Magazine
 Date Unknown

Ears are sometimes more useful than eyes in mak-
 ing electrical measurements. As an example, proper
 voltage levels in microcircuits can be checked
 faster using an audible voltmeter. A unijunction
 transistor discharges periodically through a speaker
 providing the audible output. The higher the input
 voltage is to the voltmeter, the higher will be the
 audio frequency output. The circuit was built to check
 and debug TTL and TTL logic circuits where visual
 readout is inconvenient.

The measured positive voltage is applied at E₁.
 The high-impedance voltage divider, R₁, is adjusted
 so that the maximum expected input voltage places
 about 1 volt at the gate of the field effect transistor,
 ensuring its operation in the linear region. Emitter
 followers Q₂ and Q₃ keep points A and B at about
 the same potential while letting negligible current
 flow through the load resistor R_L. The UJT is dis-
 charged through the speaker with a period deter-
 mined by R₂, C, the supply voltage V, and the UJT's
 intrinsic standoff ratio.

The adjustable resistors R₂, R₃, and R₄ allow this
 circuit to operate over a wide range of input volt-
 ages and output frequencies. R₁ biases Q₁ nega-
 tively if E₁ is an open circuit causing a lower out-
 put frequency than would occur for a positive E₁.



Sounding the alarm: Q₁ is biased to operate in its linear region. Q₂ and Q₃ maintain points A and B at about the same potential while diverting negligible current from load resistor R_L. Q₁ discharges through the speaker, sounding the audible voltmeter.

The following letter was mailed to the Micro-8 Computer User Group,
 Cabrillo Computer Center, by Special Delivery, with a MITS Inc.,
 PO Box 8636, Albuquerque, NM 87108 return address. Although Bill
 Gates' comments are well taken, it does not seem to be the most pro-
 ductive way to carry this message. Rumor mill reports suggested
 that original development work was done on a university time share
 computer, and that there was some question as to the propriety of
 selling the results, if not the legality. With receipt of this let-
 ter, it seems appropriate to ask MITS to include full details on the
 development and acquisition of ALTIR BASIC, so these rumors can be
 set to rest. A letter requesting this information has been mailed to
 MITS.

An Open Letter to Hobbyists

To me, the most critical thing in the hobby market right now
 is the lack of good software courses, books and software itself.
 Without good software and an owner who understands programming, a
 hobby computer is wasted. Will quality software be written for the
 hobby market?

Almost a year ago, Paul Allen and myself, expecting the hobby
 market to expand, hired Monte Davidoff and developed Altair BASIC.
 Though the initial work took only two months, the three of us have
 spent most of the last year documenting, improving and adding fea-
 tures to BASIC. Now we have 4K, 8K, EXTENDED, ROM and DISK BASIC.
 The value of the computer time we have used exceeds \$40,000.

The feedback we have gotten from the hundreds of people who
 say they are using BASIC has all been positive. Two surprising
 things are apparent, however. 1) Most of these "users" never bought
 BASIC (less than 10% of all Altair owners have bought BASIC), and
 2) The amount of royalties we have received from sales to hobbyists
 makes the time spent of Altair BASIC worth less than \$2 an hour.

Why is this? As the majority of hobbyists must be aware, most
 of you steal your software. Hardware must be paid for, but soft-
 ware is something to share. Who cares if the people who worked on
 it get paid?

Is this fair? One thing you don't do by stealing software is
 get back at MITS for some problem you may have had. MITS doesn't
 make money selling software. The royalty paid to us, the manual,
 the tape and the overhead make it a break-even operation. One thing
 you do do is prevent good software from being written. Who can af-
 ford to do professional work for nothing? What hobbyist can put
 3-man years into programming, finding all bugs, documenting his pro-
 duct and distribute for free? The fact is, no one besides us has
 invested a lot of money in hobby software. We have written 6800
 BASIC, and are writing 8080 APL and 6800 APL, but there is very lit-
 tle incentive to make this software available to hobbyists. Most
 directly, the thing you do is theft.

What about the guys who re-sell Altair BASIC, aren't they mak-
 ing money on hobby software? Yes, but those who have been reported
 to us may lose in the end. They are the ones who give hobbyists a
 bad name, and should be kicked out of any club meeting they show up
 at.

I would appreciate letters from any one who wants to pay up, or
 has a suggestion or comment. Just write me at 1180 Alvarado SE, #114,
 Albuquerque, New Mexico, 87108. Nothing would please me more than
 being able to hire ten programmers and deluge the hobby market with
 good software.

February 3, 1976

Bill Gates
 Bill Gates
 General Partner, Micro-Soft

February 2, 1976

Dear Hal;

I believe I sent you a copy of OVERTMODULATION the newsletter published by the Poinsettia Amateur Radio Club. In case I didn't I am enclosing a copy of the relevant page. You are welcome to reprint it but credit should be given to OVERTMODULATION.

I am almost finished with the first pass read of the back issues of the micro-3 newsletter. You've got more data per square inch than any publication I've ever seen. My input buffers got completely clogged and I wasn't any good for a couple of weeks while reading them until I got smart and started reading less at a sitting. That's a dangerous NL. Seriously, I would be very unhappy if you decide to cease publishing especially since I just found it.

SUPPLIERS

I have gotten very good service from James Electronics and poly paks; slow but reliable from Anconra; and terrible from Lafayette.

MY SYSTEM

I have an Altair 8800 (the only way to go) with 8k, parallel I/O, Altair cassette, TVT-2, and an ei cheapo cassette recorder by Webcor (about \$30) which seems fairly reliable (I can't load Altair 8k Basic but have no errors with any other tape either my own or Altairs). I also have a Model 15 Teletype (Baudot), and a small plotter which I hope to interface. I need information on a Clare/Pendar keyboard 97564 7106 700610-K15 sin 2866A or at least on the encoder chip which is labeled S077D-6 Q 7116

I was hoping to use the system thru the Amateur Radio to other similar computers but the FCC quashed that. I am a professional programmer and I am more interested in developing software than in playing with hardware. I hope to develop higher level languages, operating systems, advanced games etc. My first projects will probably be limited operating systems and Amateur Radio related programs. I have my own code generation program running which is unique in that it requires only one word for each character in the morse code table yet it allows all letters, numbers, punctuation, and up to 32 special codes. I hope to write a program to receive morse code and others to send and receive RTTY (Baudot code).

TAPE DATA FORMATS

I suggest that any standard tape format require a file name, say up to 17 characters, the location in memory at which it is to start, the length of the file, and provision for checksum or parity words. This way all the necessary information is included in the tape file and no auxiliary papers must be kept except possibly a listing of program names in the library and the starting address on the tape so the computer doesn't have to read the whole tape to find a particular program.

It might also be worthwhile to include in the tape an ASCII comments section describing the program but which section need not be put in memory when loading the tape. I expect a loader to load this sort of file could be written in well under 256 words and committed to PROM.

Well I guess I've run dry for now. Keep up the good work.

Phone (805) 486-6087

Amateur Radio - 2 Meter FM
Monitor 14.28-146.98
Sulfur Mountain Repeater

Sincerely,

Glen Charnock
Glen Charnock W6GJMN
560 W. Gonzales Rd. #22
Oxnard, Calif. 93030

Reprinted from OVERTMODULATION, the newsletter published by the Poinsettia Amateur Radio Club and edited by Glen Charnock.

COMPUTERS

You may remember that Dave W6DHW and I had great plans for interfacing our computers through our amateur radios so that the two computers could talk to each other thus facilitating the exchange of information and programs and allowing the use of both machines to attack problems too large for one machine. Unfortunately we're going to have to scrap some of these plans because of the stand of the FCC as expressed in the following letter dated January 13, 1976:

Dear Mr. Charnock:

This is in reply to your letter dated September 27, 1975. The delay in responding to your letter is due to the enormous increase in CB applications and correspondence received in this office. Please accept our apologies for the delay.

You indicate a desire to use microcomputers in conjunction with amateur radio stations so that "two computers could communicate through the radio link." We fully appreciate the significance of your proposal, however, the purpose of the amateur service is to provide a hobby radio service to amateur licensees rather than an operational, over-the-air computer service. Section 97.1(b) of the rules sets forth the principle of continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art. Please note that there is a definite distinction between advancement of the radio art and advancement of the computer art. Accordingly, the interconnection of an amateur radio station with a computer would not be within the scope of the basis and purpose of the Amateur Radio Service.

Of course, computer technology may be employed to assist amateurs in connection with their radio hobby provided computer data is not transmitted over the air on amateur frequencies via a computer-transmitter interconnection.

Section 97.69(a) of the Commission's Rules presently restricts teleprinter emissions to the use of the International Telegraphic Alphabet No. 2 single channel five-unit (start-stop) teleprinter code. The use of the ASCII 8 unit code is presently prohibited. Also the amateur Rules presently does not provide for the transmission of A9 or F9 emission types.

The Commission is presently considering the initiation of a Rule Making Proceeding to relax the emission limitations in the Amateur Radio Service. We encourage you to file written comments to this proceeding when it is released to the public.

Your interest in the Amateur Radio Service is appreciated.

Sincerely yours,

John B. Jolute
for Charles A. Higginbotham
Chief, Safety and Special
Radio Service Bureau

VENTURA COUNTY COMPUTER CLUB

The first meeting of the VCCC was a big success. We had over 40 people show up. 2 systems were up and running on display, and the Oxnard Press Courier sent a photographer. There seemed to be no doubt that we will form a club though there was considerable discussion about whether to affiliate with the SCSGS (Southern California Computer Society). This question has been referred to a committee for study and a mailing will be made next month to all who signed the check-in sheet. If you would like to be placed on the roll, send 50¢ (to cover mailing and copying costs) to Eric Strohbehm 4409 Vinyard Ave, Oxnard, Ca. 93030. Information is also available from John Borders weeknights after 6 pm at 985-1631. We have not yet decided on an official structure and no officers were elected. The next meeting will be Saturday February 28 at the Oxnard Community Center, 800 Hobson Way in Oxnard.

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NEWS RELEASE

AMATEUR COMPUTER CONVENTION ON MAY 2nd

The first Convention of Amateur Computer Hobbyists will be held on Sunday May 2nd, 1976, at Trenton State College, Trenton New Jersey. Called the "TRENTON COMPUTER FESTIVAL", it will include: a convention of amateur computer clubs, technical talks related to home computing, door prize contests, demonstrations by computer amateurs and groups, program duplication service, manufacturers booths and seminars, and a flea market area for swapping and selling of components by amateurs.

The Festival is sponsored by the Amateur Computer Group of New Jersey (the largest such group in the east with over 160 members) and Trenton State College.

The amateur computer hobby is off and growing at a

phenomenal pace. It is anticipated that over 1,000 amateur computer enthusiasts will attend this first convention.

For more information contact:

Prof. Sol Libes (President ACG-NJ)
Union County Technical Institute
Scotch Plains NJ 07076
tel: 201-889-2000 x247
201-277-2063(eve)

Dr. Allen Katz
Trenton State College
Trenton NJ 08625
or: tel: 609-771-2487
609-443-3184(ave)

NOTE TO MAGAZINES: Magazines furnishing publicity for festival will be furnished *** at no charge *** table and booth space for soliciting magazine subscribers. This offer is good until March 1, 1976. Contact sources above to register for this.

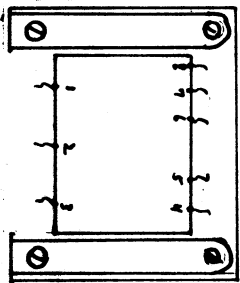
Thank you for the reprint of the NII cassette interface. I have the system running on the 8088 and 8080. I plan to make other cpu boards to run other 8 bit microprocessors in the same system. This interface will save a lot of paper tape.

Sincerely,

David Gillespie

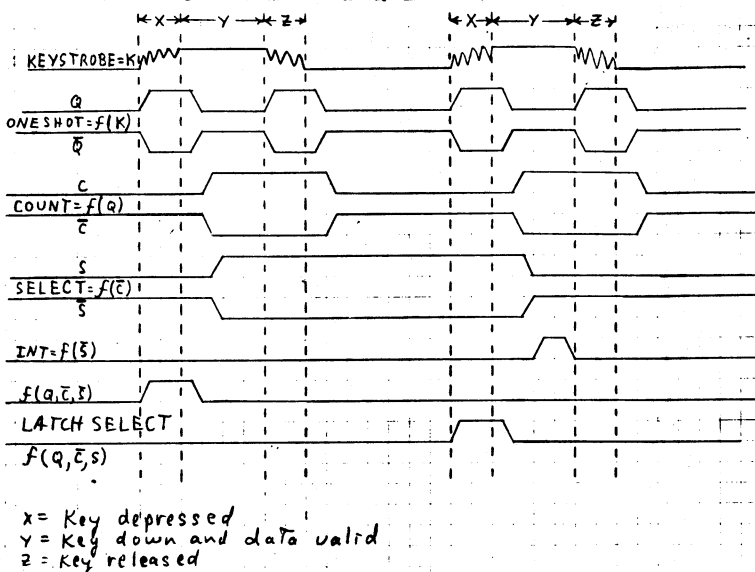
1331 North Lotta Drive
Los Angeles, California
90063

Leon A. Streng, 5213 N. 16th St., Philadelphia, PA 19141 has an Altair 8800 with 4K, audio cassette interface, and a home made octal keybd. He is saving money to buy another 4K and BASIC from MITS. He picked up 2 flexo-writers which he hope to interface, and is interested in developing a home control system (temp., security, fire, etc.).



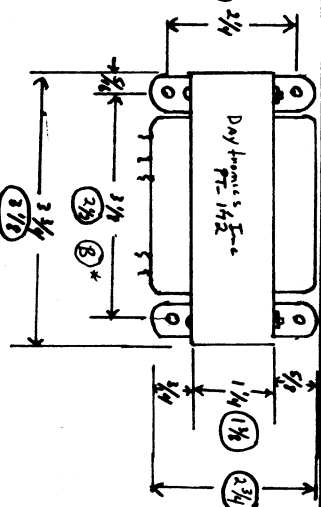
Daytronics, Inc.
1337 Mountain View, CA 94041

Paul Potter Reinhardt II, 352 Pheasant Run Circle, Apt. 6, Ann Arbor, MI 48104 sent the following modifications to MIT's Octal Keyboard that is cheaper and more reliable because of a reduction in the number of chips.



x = Key depressed
y = Key down and data valid
z = Key released

○ - Circled values indicated Altair 8800 existing transformer dimensions. Dimensions will probably fit since the holes are 0.010 in. Dimension ② may require the new holes in the pencil or enlarging the holes.

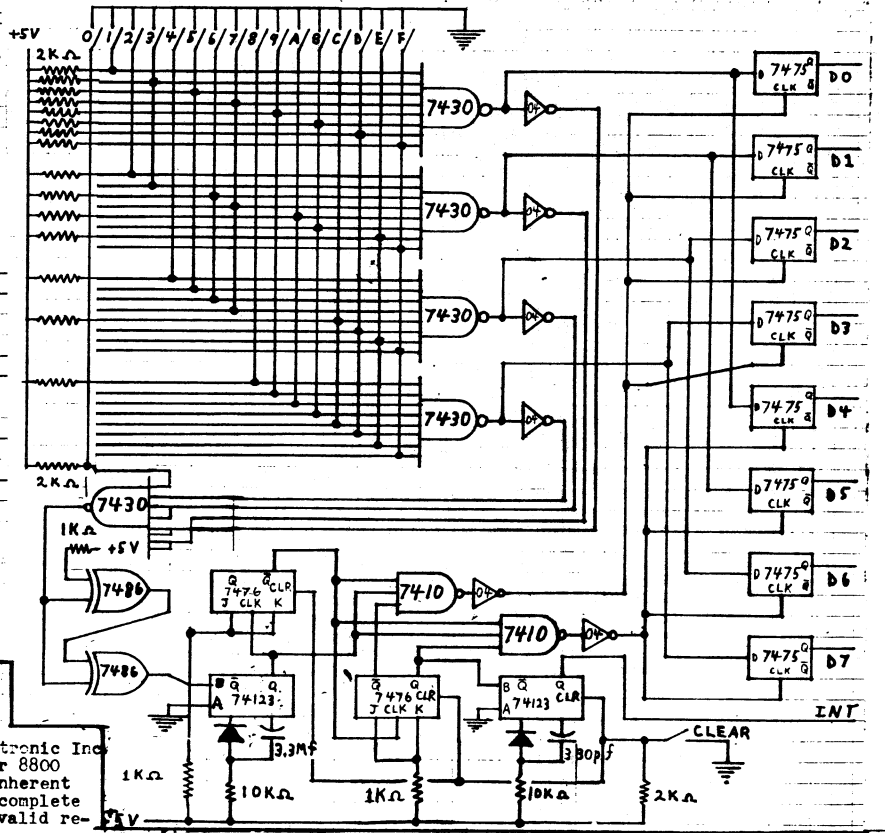


Editors of the Micro-8 NL 2377 Dalworth 157 Grand Prairie, Tx. 75050 Jan. 27, 76

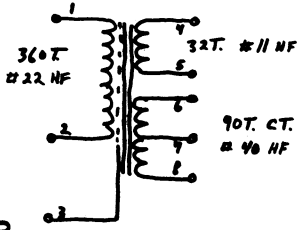
In a previous letter I indicated that I had come across a Daytronics Inc. transformer that might be used as a replacement for the Altair 8800 5 volt transformer to eliminate some of the limitations not inherent in the system. The following is additional data which is incomplete but may be enough to let a transformer expert say if it is a valid replacement. I wrote Daytronics and received a spec sheet which I have redrawn and is attached. The information is sketchy like do you remember how to figure voltages and currents from wire sizes. I didn't so I took it to an old time transformer designer. With a few assumptions, like not knowing the core material or the exact measurements of the core size, he was able to give this amount of data. Since I lost his scratch pad and hardly could read them anyway this is what I remember. Assuming a 110 volt input, the output voltage will be 9.3 based upon ITT Radio Handbook formula.

$$E_s = \frac{N_s \times E_p}{N_p \times 1.05}$$

N_s = sec. turns E_p = pri. volt.
 N_p = pri. turns E_s = sec. volt.
1.05 is a cookbook constant to allow for a 5% IR loss. After some fast shuffling thru wire gage tables and flipping terms around like ohms per sq. meter etc., he figured the secondary would put out about 17.5 amps without any problem. He went on to figure the characteristics of the other secondary, but I didn't pay attention, since I was interested in the first secondary. Anyway, it puts about 2 ma. not much use except special regulation. Anyway, he went on to say that normal design practice is to design for 70% of the input current capability which would be $17.5 \times .70 = 9.4$ amps. Considering the power supply which contained the transformer was designed for 5v at 10 amps and rough calculations, the figures don't look that far off.



The physical dimensions are very nearly the same as the Altair transformer. See sketch. Included are all the other information contained on the spec sheet I received. Perhaps someone in Cal. (Mountain View) could call Daytronics and find out for sure the above values and see if any are for sale. I've been told power supplies are easy to design, but I smoke tested too many to be confident enough all you have to do is trade out transformers. I don't have a schematic of the supply that used the transformer, but it does use a couple of 31,000 uf, 15 volt capacitors. MITS uses 4 3900 uf, 16 volts capacitors or 13,200 uf total. Any power supply expert want to volunteer his services?



Pax, Bill Fuller } This is assumed to be VA
CORE S9 STK EI-125
BOBBIN WOUND
INTERLEAVE 2X2
MAX 2 3/8" across CORE
WIRE LEADS MIN. 8" long
LEADS # 1, 2, 4 & 5 sleeved
MAGNET WIRE
LEADS # 3, 6, 7, 8 TOP IN
INSULATED i COLOR CODED

February 2, 1976

Micro-8 Computer User Group Newsletter
Cabrillo Computer Center
4350 Constellation Road
Lompoc, California 93436

Dear John and Hal:

I really appreciate it that the newsletter is being continued. The Newsletter is the only excellent source of information for the 8008 microcomputers and I could not have made it without the helpful information I obtained from reading it.

I have a Mark-8 up and running with 8 K memory, total keyboard control, TVT 1 video output, Sudio Cassette interface program in two 8223 Roms, and TCH cassette interface and prom. The computer is controlled by the Scelbi Mentor with modifications. (I might add that this is a very good monitor for the 8008 systems.)

I have a complete ASR model 32 Teletype. I am working on an interface and a program for ASCII -- ~~Serial~~ Conversion. These should be completed in approximately two weeks.

A money order is enclosed for six dollars to continue my subscription. Thanks for everything and keep up the superb work.

Sincerely,
Charles A. Lewis
Charles A. Lewis EET
3435 Woodmar Court
West Lafayette, In. 47906

Charles A. Lewis EET

P.S. I have 1 K 1101 memory board with chips for sale or trade.

I would appreciate any help that you might give in alerting members of the Micro-8 User Group to this publication. I will send a free sample issue to any interested party on request.

Thank you and good luck on the Group.
Dave Beetle
Dave Beetle

Dear Hal,
Enclosed are several copies of the announcement of ON LINE, a classified advertising newsletter for computer hobbyists.

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

Peaceful computing
106 W. 108th St., Apt. 102
New York, N.Y. 10025

Enclosed is my check for Vol. 2. Thank you and your students for this wonderful resource.

MicroProcessors Unlimited

provides THE BEST Microcomputer Course
January 11, 1976

Gentlemen:

1. Please continue your publication; please by all means!
2. Enclosed please find a flyer on our new local club. We would appreciate it if you could publish all or part of same.
3. As soon as the club doubles in size we will split it into two chapters, at least: one for Washington, DC vicinity, and one for Baltimore vicinity.
4. I am especially proud of the club's initial meeting as I personally formed it by mailing out the flyers, etc. Our first meeting had 100 people! It was A-ok and damned exciting.
5. If anyone is interested in our club, please call me on weekends.

Thank you for your help, sincerely,

John R. Gilchrist

P.S. Algorithm for the club = Second Wednesday every month.

Contact: John Gilcrest, PO Box 1087, Glen Burnie, MD 21061
weekends (301)761-5864, or Philip Hisley, 236 St. David Ct.,
X4, Cockeysville, MD 21030 (301)667-9690

Capt Trent Eyles, 936 Belmont Dr., Biloxi, Miss. 39532 - (601)374-1353 says that the Digital Group System appears to be the best deal, but would appreciate opinions from others.

Wayne Splawn, 1680 S.E. Second Place, Gresham, Ore. 97030 sent in \$6.50 for Vol. 2 of the Newsletter. He says unbiased opinions are hard to come by now that more commercialization has come into being in the hobby field.

Malcolm T. Wright, 366 W. Olive Ave, Apt 6, Sunnyvale, Ca 94086 enclosed a copy of the Micro-Loader/Monitor he is using on his Altair 8800, which is available in PROM from Solid State Music.

Dr. Mark Sebern, 36 Wedgewood Rd, Stow, Ma 01775, Director of Ultra Low Cost Systems Development for Digital Equipment Corp., renewed for Vol. 2 of the NL.

(K3224/2)

I tried to keep cross-indexing to a minimum, but it is inadequate in any case. That is the biggest problem with VANC I. As I fantasized, even then, a computer could lead to a solution. I imagined which would "solve" these problems. And VANC III would be a fantastic combination of hardware and software which would not only locate information but would display it as well. The New York Times information system beat me to it technologically--but their system has me beat economically.

Well, that's my vision, parts of which, anyway, I plan to implement. More immediately, my plan for my machine is to turn it into an "intelligent" terminal so I can call up some strategies--and maybe learn something.

Enclosed is my check for Vol. 2. Thank you and your students for this wonderful resource.

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THE CHESAPEAKE MICROCOMPUTER CLUB

VOL. I NO. 1

JANUARY 7, 1976

HELLO

For years I had pushed bits and bytes around in 'number-crunchers', wishing fervently to possess my own computing resources for personal gaming and simulation -- but in those days (the crush of technology makes last month antiquity) it cost a mega-buck or a surreptitious entry in the program library with a suitably business-like catalog name.

Then came the Intel 4004 and 8008, and computer construction articles in electronics magazines. I rejoiced! No longer would I have to go it alone, wondering where everyone else was; the movement, however, still remained pretty much underground. The technology was there, but it was difficult getting a hook into it.

Then came Scelbi and MITS and Byte Magazine; one day, early in December 1975, John Bird, an associate professor of electronics at the Community College of Baltimore, mentioned to me that a fellow by the name of John Gilchrist was sponsoring an open seminar on microprocessors. The meeting WAS and we ARE -- the CHESAPEAKE MICROCOMPUTER CLUB, INC., the evolutionary end-product of that meeting.

Thirty participants were expected; more than one hundred attended. In the course of the evening presentations were given on PROMs, the Mostek P8 up, the Intel 8080 up, the Altair systems, and a system being offered by the Digital Group. The enthusiasm and response was overwhelming. Since the first meeting a group of volunteers have drafted articles of incorporation and by-laws, giving the organization form and a flexible structure within which to operate.

The main function of the Chesapeake Microcomputer Club is to provide a forum for COMMUNICATION -- vital in a field which deals with the processing and manipulation of information. I know of a fellow in the Mathematics Department at Towson State College who is developing an interface between an Altair 8800 and a Selectric typewriter; at the first meeting of the organization I found at least three persons doing the same thing.

Are you into gaming, hardware development, software development, have an idea, perhaps a problem, or maybe just an interest? The resources are now at hand, and you are a part of those resources -- won't you join us!!

This letter is overdue; I've just been talking from the newsletter, without offering. I'm not sure what I have to offer, however. I have no circuits or programs, but do have some raw on my plans and hopes. That'll have to do for now.

In late October, 1975, I called Doug Hancey of the Sphere Corporation and placed my order for their "SYS-2" after a ten or fifteen minute discussion with him. (I was convinced before I called, but I had to assure myself they were "for real".) After getting a loan from my credit union, I sent off the check, and began my long, arduous wait for the machine. My fantasies and dreams haven't stopped growing. But I do have some plans as well.

My first software project will be to write a more complete assembler. After that I hope to work on a series of compilers, gradually bootstrapping into a full-fledged PL/M-type compiler. Once that is implemented, the sky's the limit -- imagine the programs, operating systems, information retrieval systems,.... other compilers. What a toy!

The application that most tickles my fancy as well as fantasy is an information retrieval system. About six years ago, I developed a manual information system while I was doing my alternative services. Clippings were pasted or notes were typed on 3x5", 5x8", and occasionally on 8 1/2 x 11" cards or paper. Along the top edge of the cards or the left edge of the paper a row of 12 boxes. In the first four boxes I stamped "typed", or wrote a subject-index number -- 2 cm 3 nos. to a box. The remaining boxes contained a sequence number, usually the date in reverse (760115 = 15 Jan. 1976) or the library of Congress Card Catalog no. -- generally 1 number to a box. In the next remaining box, I typed a volume/page number.

During the development of BILCO MARS I (Barter Research Information System & Catalog, Multiple-Access Retrieval Configuration #1, as I pretentiously dubbed it), my biggest difficulty was the classification/cross-indexing scheme. At first, I tried to devise one based on Bogert's Psephisms. Finally, I decided to go with the Dewey Decimal classification. I began using the abridged edition (edition 10), but ultimately moved to the unabridged version (by this time, Edition 18 was off the presses) for its greater topical depth. The books of schedules, for those who may be interested, are published by Forest Press, Inc. of Lake Placid Club Education Foundation, By Waterfall Avenue, Albany, N. Y. 12206. I chose Dewey for several reasons: I was familiar with it; only numerals are used (letters were occasionally); despite its many structural shortcomings, especially in technological subjects, it covers topics with sufficient depth; and it was a lot cheaper than the Library of Congress schedules.

15 January 1976

TELE-COMMUNICATIONS

DIY

of
Service Dynamics Inc.

P. O. BOX 445 PERU, IND. 46970

TEL. 317/472-2126

A. L. ST. CLAIR
PRESIDENT

PAUL D. BUROKER
VICE PRESIDENT

Gentlemen;

I received your sample copies of your newsletter and I am enclosing a check for \$ 12.00 to cover your expenses plus a little extra to cover someone else. I want to thank you for your efforts in putting together this newsletter and above all do not stop it. Your main problem in obtaining new subscribers is public relations. For the last month or longer I have been searching for micro-computer publications that have circuits, tips for the builder, etc. that would provide good reading without getting too technical. When I saw the very small blurb about your group in the recent issue of P.E. I was stabbing in the dark to locate someone who could give me enough information about equipment and publications as to where I could write. I had contacted engineering libraries, local and at Ft. Wayne Ind. but nobody had any info. Do not be afraid that your newsletter will lose it's punch to the local groups, because local groups in this area are far between, in fact I doubt that there is 30 people in the state of Indiana close enough to make a viable club and even then, the news would be old hat. It will be the input from all over the country and our friends north of the border that will make the publication grow.

Public relations is the key: The young people interested in electronics and getting into computers have to be informed about the clubs in their areas and the publications available otherwise it will be years before you see a real growth. I have been busy calling around our area to the vocational schools, high schools, etc. giving them your address and also where to write to obtain packets on circuits that is available through Mr. Delp that could be used in electronics class. I have had a tremendous response from the area schools, all interested in the publications and packets available from the professionals and the hobbyists that could be integrated into their courses. Just a little P.R. and away it goes.

My interest in micro-computers is to develop teaching devices with the capability of analysis of the answers; restricting the student from moving on to the next training segment before the correct answer is given to the previous questions. Programmed instruction is the term used for this type of training method.

The size of the final prototype would be similar to the unit being advertised from Sphere Corp. (micro-Sphere 200) however, the micro-computer I need would have the graphics capability, Cassette memory feed, full keyboard (73 keys) with math entry to ± 127 scientific notation min. 32 characters per line min., 16-8 lines single height or double height characters, programable from the cassette according to the function it has to perform.

If anyone is interested in working with our Co. to develop such hardware for a profit or has such a device in the mill, let us know. Education and bringing better meaning to our lives is one of our philosophies that we founded our company on. We have currently designed the Career Guidance Systems (Copyright 1975) plus developed the TV Shopper System for C.A.TV cable systems. Effective communications is our moto and by developing services and equipment that can better communicate ideas and products plus the available services to serve the people; we have provided another essential link in the chain of effective communications.

"The most brilliant of ideas are totally without value, until they are successfully communicated to others"

Enough of the "Philosophies". Please publish a list of the publications available with address and a brief description of content plus any technical application manuals available on TTL logic.

micro-processors, etc. that is of a practical nature and not of a total High engineering nature that you can't understand unless you have had five years of electrical engineering.

Thanks for the time and keep up the work.

Send info to:

Sincerely,

Paul D. Buroker
Tele-Communications Div.
Service Dynamics Inc.
263 West 5th. Street
Peru, Indiana 46970
A 317-472-2126

Paul D. Buroker C.E.T.
V. President

SMITH ENTERPRISES

4502 E. Nancy Ln. Phoenix, Az. 85040

Dear Hobbyist, Jan. 22, 1976

IT'S TRUE-- after months of waiting, my ASCII to Baudot and Baudot to ASCII articles will be in the March and April issues of Radio-Electronics!

Better yet -- the boards and kits will be available Feb. 1!! The ASCII to Baudot kit is \$24.50 and the Baudot to ASCII kit is \$19.50 from Southwest Technical Products Co., 219 W. Rhapsody, San Antonio, Texas 78216. Either P.C. board by itself is \$4.35.

Both kits will need a few additional parts if you want to put the board in a TV Typewriter (either TWT I or the CT-1024). No additional parts are needed if you mount the board in your computer. Of course, you will need solenoid drivers to interface your TTY (several methods are shown in the instructions).

If you should have any troubles programming your computer to handle the TTY, send me a S.A.S.E. and I'll send a listing of my program. Sincerely,

Good luck with your TTY!

Roger L. Smith
Roger L. Smith

PS: There was a minor (but important) change to the ASCII to Baudot circuit in November. Check the article. The connection to IC2 pin 3 was changed.

I would definately like to hear more on the subject of computer conferencing mentioned by David Christianson in issue #12 volume 1. Is it at all conceivable that the Micro-8 Newsletter could move in this direction?

Sincerely,

Gary Fox
Gary Fox

384 East 194th Street, 2M
Bronx, New York 10458
JANUARY 28, 1976

Page 5

I would like to commend you on your efforts with the NL I receive several hobby publications - RCH, TDC, BYTE, RS, and the NL - and while they all have their merits, it is definitely the case that the NL stands unique. In an area where so many people are concerned about "computer demilitarization" of life, your highly personal approach is refreshing and most welcome. Basically, I'm in agreement with the remarks of Sol Lides whose letter you published in V2#11.

A few words about myself: Professionally, I'm an engineer/programmer employed at the University of Connecticut. I work on a NOVA 2 computer with 32K of core, disk, line printer, A-D/D-A, graphics scope, XY tablet, and a speech synthesizer. I build interface equipment and do systems and applications programming.

I haven't yet taken the plunge into building my own home computer. One reason, I guess, is that I have access to such a nice system at work. And then there are the old hangups of time and money. Nonetheless, I hope to begin a system sometime this year. I don't know which microprocessor I'll be at this point I'd choose either the MOS Technology 6502 or National's P405. I plan to have both floppy disk and cassette and a graphics display. My primary interests in using the system are graphics and games.

In the meantime, I enjoy keeping up with the action, and the NL is a big part of that.

Sincerely,
Bob Wallace
Bob Wallace
386 Browns Rd.
Storrs, Ct. 05264
27 Jan. 76

Bob Wallace, designer
PO Box 5415, Seattle, Wa. 98105
December 30, 1975

Gentlepeople,

The first issue of Comindex, a directory of information and people involved with computer alternatives, is in this issue of "Rain". I realize it's long overdue, but I have collected much good information, and hope to get more of it out in the future. The material in Comindex focuses on community and communications uses of computers. Originally, it was to include a computer hobbyist directory; a great idea, but one needing more time than I have available. The material selected includes papers, magazines, projects, and organizations active in fields such as community memory, conferencing, grassroots networking, and utilities for social change groups. Computer hobbyist info, computers in education and in art, privacy, and other issues are included to some extent.

Comindex is sent to subscribers, and selected magazines and individuals. Subscriptions are \$2.00 for issues one through four (this is issue one). Issue two will be out in two to six months.

Some news - the Journal of Community Communications will have its second issue soon; it costs a dollar from LDC Engineering, 1807 Delaware St., Berkeley, Calif. 94703. It focuses in pretty much the same areas as Comindex. A Seattle area amateur computer club is being formed; first meeting is January 12, 1976 at 7 pm at 1591 NE 63rd street. Call 524-6359 for more information (I'm to be "Rain" magazine is highly recommended; as you can see, it contains much good information on appropriate technology.

Bob Wallace

New World
Computer
Services, Inc.

I feel compelled to write and contribute something to your excellent newsletter. I am an electrical engineering student at the University of California at Davis with a major in Computer Science. My own system consists of an Altair 8800 with 10k of static RAM and 8k of ROM containing the PI ALB-3 and simulator packages. I have an ASR-33 TTY hooked into a PI 3P+S, a non-functional SWTP TVT-II, a PI VDM with monitor, several Clare-Pendar keyboards, and various assorted goodies too numerous to mention. My room-mate here is a software nut; I'm into hardware, and together we're almost compatible.

I would like to throw in some comments on varied subjects, so here goes:

- 1) The PI 3P+S is an excellent board of superb quality, and I highly recommend it. The documentation on it can stand some improvement in the section dealing with status bit selection for the ports, but the guys down at Berkeley assure me that they are working on it.
- 2) My TVT-II has never worked but I hope that with diligence and time (I have little of it these days) I can get it going. I will then sell it as quickly as possible. My advice is simple; don't get one. Several people I've talked to here have had problems with the sync circuits. Their power supply constantly fails at the crucial moment, and every main board I've seen has had at least one small hole that was not plated through. The PI VDM is a better deal for the money any day.
- 3) the Clare-Pendar keyboards are fine as long as the ROM holds up. Some boards have bit problems while others have troubles with the strobe line. These can all be traced back to the ROM. This ROM is a TI TMS-5000 which was made only for the keyboard supplier and is not available for replacement. If you're lucky you can usually get around the problem by hooking up a 7430 to the ROM inputs and generating your own strobe pulse, or hooking the NAND gate to the data lines to generate a missing bit.
- 4) I hope to write an article for BYTE on a computer-controlled burglar alarm system. I feel that such a system could have definite merits. Any ideas?
- 5) I am subscribing to the following letters of magazines: Micro-8 NL, The Digital Group NL and Clearinghouse, The Computer Hobbyist, Byte, MITS Users Letter, Peoples Computer Company, and SMUG (Sacramento Minicomputer Users Group). Of them all, I think your NL is by far the best for dissemination of user information. I find your NL has a lot of interesting little tidbits that don't get into any of the others. Please definitely CONTINUE!

Enclosed is a check for \$6.00 to cover volume 2 of your NL.

Thanking you in advance, I am,

Sincerely Yours,

928 J Street
Davis, CA 95616
December 8, 1975

John Moorhead
John Moorhead

Page 6

ELECTRONIC
DISCOUNT SALES
138 N. 81st St., Mesa, Arizona 85207

January 9, 1976

Regarding the future of the "Micro-8", although the type is a trifle small (understandable) it is the most informative and most enjoyable publication that I subscribe to (among 6 monthly and 1 semi-monthly periodicals). I know that I speak in the company of many when I say that to discontinue the "Micro-8" would be a great disservice to all computer hobbyists. Please consider continuation of the newsletter.

I have recently purchased from Martin Research most of the parts of a computer system for use in the business. The service from them was outstanding as well as the quality of the merchandise. (Unfortunately, I don't seem to have time to get it together). I haven't read the manual as yet, so can't comment on that.

We are presently offering several kits that may be of interest to your readers:

TVT-II Video Terminal	\$112.00	Screen Read	\$11.64
Manual Cursor	\$9.50	Serial Interface	\$35.50
Audio Cassette Computer Interface	\$27.50		
CT7001 Clock/Calendar	\$45.50		
5V, 2A, Regulated Supply (LM309K)	\$7.95		

All kits sold minus power supply and case. All P.C.B.'s are double-sided and plated thru except for the CT7001, which is single sided. All boards are available separately at the following prices:

TVT-II;	\$35.50	Screen Read;	\$8.10
Manual Cursor;	\$6.70	Serial Interface;	\$17.50
Audio Cassette;	\$14.50	CT7001 BD.;	\$10.50

We are in the process of working-up kits on; the Pace, 16 bit microprocessor; 4 1/2 Digit D.V.M; and the Pocket Data Terminal as appeared in Jan. '76 Radio-Electronics.

Have to run, good luck to all at the Cabrillo Computer Center.

Jim Heil
Jim Heil, owner
Electronic Discount Sales

I AM GLAD THAT YOU HAVE DECIDED TO CONTINUE THE NEWSLETTER. I DIDN'T WANT TO ADD MY PLEA TO THE OTHERS THAT YOU CONTINUE (EVEN THOUGH I WANTED TO) BECAUSE I KNOW HOW BIG A BYTE THIS TAKES OUT OF YOUR TIME.

SEVERAL PEOPLE HAVE ALSO COMMENTED ON SOMETHING ELSE THAT I FEEL STRONGLY ABOUT - AND THAT IS THE FORESIGHT OF THE ADMINISTRATORS, STAFF AND STUDENTS OF CABRILLO HIGH FOR THEIR SUPPORT IN ALLOWING THE MICRO-8 USERS GROUP ACTIVITY TO GROW UP TO 12 K OF MEMORY! I WOULD NEVER HAVE BELIEVED AND DEVELOP INTO THE MOST USEFUL VEHICLE OF THE COMPUTER HOBBY THAT IT IS. MY SINCERE THANKS TO EVERYONE THERE THAT HAS CONTRIBUTED IN ANY WAY - YOU HAVE PUT THE CABRILLO HIGH SCHOOL COMPUTER CENTER ON THE MAP!

THANKS ARE ALSO IN ORDER TO THOSE THAT HAVE TAKEN THE TIME TO SHARE THEIR KNOWLEDGE WITH THE REST OF US. NAMES LIKE RITTER, MORRIS, SEVERANCE, PLATE, AND FRY COME TO MIND (OTHERS THAT SHOULD HAVE COME TO MIND PROBABLY DIDN'T).

I HOPE THE CONTRIBUTIONS KEEP YOU PAINTING FOR YEARS TO COME. (AND FILE IN ALL THOSE THAT PROMISED SOMETHING AND THEN NEVER DELIVERED...) THATS ABOUT IT FOR NOW. MY MICRO 8 IS NOW 12K OF MEMORY! I WOULD NEVER HAVE BELIEVED THAT I WOULD EVER HAVE OR NEED THAT MUCH MEMORY A YEAR AGO, THINGS SURE CHANGE FAST. ALSO WISH SOME 'SMART COOKIE' WOULD COME UP WITH AN 8008 'BASIC' IN THE MEANTIME WE'LL LOOK FORWARD TO THE NEXT MICRO 8 NEWSLETTER.

3 FEBRUARY 1976

M. PAUL FARR
3723 JACULSTART
SAN PEDRO, CA 90731

LOW COST
OPTICAL PAPER TAPE READER
(Affectionately referred to as the PET READER BOX™)

NOW LOAD:
Monitors
Assemblers
Simulators
Hardware DEBUG Routines
BASIC, FORTRAN, etc.
Memory Test Routines
Arithmetic Subroutines
DAZZLER™ Software
Computer Games
and FAST!

EASILY INTERFACED
Will interface to parallel and serial I/O cards.
Tapes may be loaded through most CPU terminal I/O ports with no software modifications. (i.e., hang a PET READER BOX across the UART on your TTY port and you can load BK BASIC in less than a minute instead of 14.)

SMALL, LIGHT WEIGHT, and PORTABLE
Just 2.5"x4.6"x3.2" and less than a pound.

LEDS INDICATE STATUS
PWR Indicates Power On
SP Monitors the Sprocket Sensor
S1 Optional CPU Status Indicator
S2 Optional CPU Status Indicator

Just pull the tape through!
Precision sensor array has 100% response time!

OP-80A

It's been almost a year since I wrote you the 14 reasons (or so) of why I bought an Altair 8800. Time for an update since many are asking the same questions I asked back then and really got no definitive answers. All that follows is generally my own opinions based upon a years experience which ins't much when you realize how much things have changed in that time. So based upon Vol 2, No. 1 here's my yearly memory dump.

One or two asked for an owner's report. Speaking as an 8800 owner what do I think about it? First off its a good machine for various reasons, but can also be a limited machine. Many of the good technical features were covered by Hal Chamberlain in the Computer Hobbyist so I won't cover them here. Other 'good' features. If you can afford it, you have one source of supply--somewhat like the DEC setup for the PDPs. If it doesn't work send it back, you don't have to learn all that logic stuff presuming that you get it assembled which is recommended highly for those who don't know or care to learn hardware--not everybody is good at soldering and splicing etc.. It has established somewhat of a standard in that many suppliers are providing directly compatible add-ons. Presently, it still seems to be the best supported (the 8080 based CPU), not necessarily the Altair.

Many of the complaints related to how MITS designed certain circuits is probably valid when you are judging from a processor chip point of view, but those new chips weren't available then and are still scarce. Some other technical complaints are valid--like an arbitrary acting deposite circuit, hot running zeners at the CPU, a 7.5 volt supply that craps out with four boards in the system, and of course the weird cabling from the front panel (possibly that has been changed?).

Another 'good' point is that MITS tends to admit their mistakes and has made some effort thru the Computer Notes to help the hobbyist, unfortunately its not worth \$10 if you don't own an Altair or 8080 based unit. So to find out where they're at you need to subscribe which is kinda strange. Another good point--you don't have to buy from one supplier, you have many options for memory boards, I/O boards, video displays. Try getting this with some of the other kits. now available.

Another favorable point, software is starting to crop up everywhere for the 8080 based Altair.

I guess there are probably other good points, but at 2AM all can't be wine and roses. Therefore, the bad points not already covered. It's a limited machine, at present at least. The primary limit is the power supply--to fill those 16 slots will require you purchasing all the boards from MITS. The only alternative I see is to know what the hell you're doing if you don't. Like if you want to get 16K memory in it you better stay away from those good buys on 2102s populated on a nonMITS board. You also have to learn good things like how many boards can I really use before blowing it up. Perhaps in another year this will be solved with some of the newer chips, but who wants to wait? Another poor feature is inputting data. It would have been so simple to put in a monitor program on a couple Proms to get you started. Other kit manufacturers learned this fast and are supplying something to get you going. This is the main reason people have units in their homes not being used--its not necessarily that they just like to build things. OK so it hasn't been a definitive owners report, just a few points early in the morning, therefore, the conclusion---Would I buy the Altair now? In the future? Now? No. Why for some of the above reasons and because my choice of what I want to use is limited if I want to pack everything into the one case without redesign or modification of the power supply. Future? If the price were right and delivery right. The latter has been somewhat resolved by MITS and the new mail order law; the former has not. Thus my unit consists of a Godbout board, a Solid State Music board, a Processor Technology board and a Kluge or two. Its more like a MGSPK than a MITS.

So my very final conclusion--I did it my way, maybe some of the above will help you all who asked to do it your way.

If I may presume some more space, here's some info for the other Altair 8800 owners. I came across an Information & Computing Centers Corp. 5wilt, 10 amp supply--the transformer is Daytronic PT-172 4028 which has the same dimensions as the existing transformer. Anyone have information on either company so that the specs for the transformer may be checked out? If you plan on using many proms, change the -16 volt transformer--Proc. Tech. sells one. If you plan to use more than 12-16K memory, get boards that are buffered in and out otherwise noise

becomes a prime consideration. Solid State Music I/O boards are an excellent alternate. Avoid use of 2102s or other high power static memory unless you remain with a small memory system, or modify the P.S. Don't be afraid to experiment--create your own MGSPK.

Now some basic criteria in selecting a machine. Determine what you want to do with it. If you plan on taking over the world try another route. But if you've had no experience with hardware or electronics--don't buy a kit unless you have a patient friend who knows how to put one together. You may save \$150, but have a \$1000 headache. Of course if you want to learn about digital circuits and know your machine a kit is one way, but know what you're getting into. Which has the best instruction set and can do more? I don't know, perhaps no one else does either, why else all the different CPUs. If you're a software type, you might be able to solve this by just evaluating the way the CPU operates on data. The most obvious difference is in the instruction word length..8, 12 or 16. Right now more is available to you with the 8 biters. Very few make a 16 bit wide memory board that is readily available and fairly cheap. The 12 bit machine using the 6100 chip by Intersil will let you use all of DECs software for the PDP-8, but the LSI-11 will let you use DECs software also. Main problem presently is availability of economical assemblies for these units.

Once you feel committed or you can't get rid of the urge to set up a system expect to spend at least \$1000 to put everything together, i.e. hardcopy, video display, modem, cassette interface, etc. This expense can be spread out over a period of time, but so will your system. An alternate to committing to that much right away would be to start at the very minimum with something like the OSI boards for the 6800 and 650X or the new E&L Instruments protoboards for the 8080. Spend the minimum to learn what these units are doing. None of the investment is wasted, just read what others have applied the unit to doing. By going small and spending a couple months, you'll be in a better position to determine what you really want. There always will be bigger and better this and that appearing on the scene. You have to jump in sometime and just start thrashing the arms and go to meetings to commensurate with others thrashing. The very last 8800 owners evaluation--am I sorry I bought one? No, considering its been nearly a year ago. Do I consider it obsolete? No, limited yes, for the above reasons. Would I buy one now? From the economics point of view, probably not. From the limits point of view probably not. But you must remember the limits reason also applies to many of the other kits being offered. The SWTP 6800 can only address 32K memory without modification and its set up for a 33ASR TTY, you would need modification to use a 5-level machine. I might State And Indicate that the power supply limitations have been solved by another Altair 8800 compatible machine. Expect to get burnt once in awhile; it indicates your enthusiasm for your own system is still alive.

Pax, Bill Fuller

Jan. 27, 1976

Sargent's Distributing Co.
10268 Rosecrans
Bellflower, Ca. 90706
213- 925-6315

We have the ALTAR 8800. We are waiting for Polymorphic Video display board.

We have some excellent ASCII keyboards, complete with top case and bottom cover, connector schematic for \$53.50 plus shipping. Watch for a picture of it in FEB. INTERFACE.

Also we will be featuring a Universal wire wrap proto board complete with socket pins in the \$30-35 price range. We are members of SAAS and hope to provide your members with many bargains.

FWS/aaz

P.S. We have 1702's for \$10.00

Page 7

Peter W. Sargent
(owner)

Peter Sargent

Gentlemen:

29 January 1976

Congratulations on your volume number two. I was wondering for some time if you would keep going with your fine newsletter. I know that in my case I would have a hard time to find a replacement for it. A magazine like BYTE just does not have the wide variety of information that lets you know what other people are doing and what kinds of problems they are running into. This microcomputer hobby is growing and as people get into it they will find that they need the information that you provide so I do not think you will have trouble finding another 100 subscriptions.

The purpose of this letter is that I am starting on my second generation computer. My first generation was a Mark-8 and after much experimentation, many headaches, a few modifications and one inexperienced human it passed away

due to 110 Volts AC being applied at the wrong place. The burnt out components were replaced and the computer just wasn't the same. As I had an eye on one of the newer systems I decided to go that route and now I am patiently waiting for my order from The Digital Group. I do have two memory boards for the Mark-8 that have never had a drop of solder on them. I would be willing to part with them for \$8.45 each. The rest of the Mark-8 I might part with if anyone is interested. There is no used computer market going yet so it should be interesting to see what develops.

Sincerely yours;
David Christianson
David Christianson

305 Jackson Avenue
Crookston
Minnesota 56716

TO THE MICRO-8 NEWSLETTER READERS

I was somewhat surprised to see my ILLX KEYBOARD loader program printed in NL V2N1. There is one thing that I failed to mention about that program, which is, I tried to keep it to a bare minimum (for keying in thru the front panel) so I cheated and derived hex A-F input from the : ; < = > ? keys because the right four bits of their ascii codes is A thru F and none require a shift on the SWTP keyboard. I labeled, with tape, the front of these keys as A-F. Since then, I've added six more instructions to allow use of the real A thru F keys. After program statement number 39 (JC BITS), insert:

```

MOV B,A ;SAVE AC
ANI 80H ;NUMERIC?
MOV A,B ;RESTORE AC
JZ TCAN ;OK IF NUMERIC
SUI 02 ;-1 (SHIFTED)
ADI 14H ;MAP TO A-F
TCAN: ;CONTINUE
    
```

TCAN is a label for the (CPI CANCEL) statement.

I have a hot item which should be released immediately (next NL if possible). How about 8K of low power, fast, static RAM on ONE Altair board for around \$230, or 8K of standard RAM on ONE board for under \$200 ... It's true, it works, and it's fantastic... in the Jan 5, 76 Electronic Design, on page 120 is a technique for stacking two memory chips (one on top of the other) and soldering all leads together except the chip enable pin, and plugging them into memory as a 2k double chip. I've been stacking low power ttl chips for a long time (to get more drive) but it didn't dawn on me to stack memory chips. Thanks to E. R. Fisher of Lawrence Livermore Labs, Livermore, California, my Altair memory has just doubled without adding any new boards. And again, too good to be true, the SOLID STATE MUSIC MB-2 (Altair 4K memory board) is designed as if it were made especially for this technique. The addressing for the second (top) 4K is already there - remove a resistor, re-route a couple of traces, connect pin 13 of the top 2102's to the proper pins on the 74L42A (see figure 4) and that's it... I suggest wire wrap wire or a vector wiring pencil (I've used both) for the chip enable connection. ...Again, too good to be true, the MB-2 has a lamp regulator for each 1K of memory (four regulators) which is super overkill to start with. 8K of 91L02 just barely warms the regulators. 8K of Signetics 2602's pulls over 250ma per 1K so I added Altair style heat sinks to the regulators just for insurance. I also left an air gap between the top & bottom of the soldered-together memory chips (the 2602's) so the fan could do it's thing (2602's like to be cool).

Of possible interest to computer hobbyists, is a system controller that I developed and burned into prom. I'm reluctant in calling it a monitor because the term monitor and operating system seem to be used interchangeably, and this is not what I classify as an operating system. It is a systems programming/debugging tool. In order to stay compatible with industry, I've named it "JIMBUG". JIMBUG requires 512 words (2 1702A's) and has the capability of almost unlimited command and routine expansion WITHOUT re-burning the original two proms. I bought a PTC 2KRO and designed the system around it, although any prom board can be used with equal ease. My design criteria for JIMBUG was as follows:

The major interests of computer hobbyists is in designing hardware and software therefore JIMBUG must not interfere with this end. JIMBUG must initially replace most of the computer front panel; allow displaying, modifying, loading, and copying memory to memory; be able to read from and write to cassette; and must provide breakpoint capability. A good 8080 operating system must use (occupy) some of low memory because of the RST instructions. JIMBUG, therefore, resides in higher memory and does not use any RST instructions. When designing hardware, quite often memory mapped I/O using address bit 15 as the I/O indicator is the easiest method, therefore, JIMBUG resides below the 32K mark. JIMBUG must not use any expensive hardware for operation as the hardware will (should) be pretty much dedicated to JIMBUG.

As I have it in my system, JIMBUG begins at loc x'7400' (29696 decimal) and likes to think there is at least 256 bytes of space behind it (for future additions) followed by some RAM for a work area. My PTC 2KRO provides 1996 bytes of expansion area. RAM occupies the last 1K before the 32K middle-of-memory mark. Currently only the first 256 bytes are used (which provides a nice home for my original Altair 1K memory board). The I/O hardware I have dedicated to JIMBUG is a parallel keyboard (SWTP) and four 7 segment leds (driven in hex) mounted in that big blank spot on the upper right side of the keyboard PC board.

JIMBUG uses the technique stolen from LSI-11 (ODT) and MONITOR-80 terminology (CLP) of providing a window into memory through which all (most) transactions pass. For lack of something better, this window is called "CLP" (current location pointer). There is also an "ELP" (end location pointer) for delimiting memory space used in memory-to-memory, memory-to-cassette, and sometimes cassette-to-memory transfers. The 512 byte JIMBUG system controller provides the following commands: LOAD CLP; DISPLAY CLP ADDRESS; EXAMINE MEMORY; EXAMINE NEXT; DEPOSIT; DEPOSIT CONTINUOUS (hex keyboard loader); LOAD ELP; DISPLAY ELP ADDRESS; EXAMINE MEMORY AT ELP; SET BREAKPOINT; CLEAR BREAKPOINT; DISPLAY BREAKPOINT ADDRESS; RETURN FROM BREAK; // the following display commands operate upon saved breakpoint data; DISPLAY H&L; DISPLAY D&E; DISPLAY B&C; DISPLAY PSW; DISPLAY STACK POINTER//; COPY MEMORY TO MEMORY; TAPOUT (jump to users tape routine); TAPEIN (jump to users tape routine); EXECUTE (transfer control); INITIALIZE (reinitializes JIMBUG); AUX jump to loc x'7700' (4th prom).

The AUX command is provided so that a user may put a function in the 4th prom and get to it without extending the command table, that is, no need to burn the 3rd prom (command extension table) for a single command extension.

I have made up a complete JIMBUG package which includes EVERYTHING, complete assembled source listing, command reference guide, hardware hook-ups, and how to add your own commands & routines. I will also provide JIMBUG proms - complete details will be provided for a SASE and/or with the JIMBUG package. The JIMBUG package is \$10. If you are interested, send a SASE for more info or \$10 for the JIMBUG package to:

PAN-TEC
820 Sweetbay Drive
Sunnyvale, CA 94086

Many thanks for a winning publication - here is my belated renewal.

Should anybody have problems with the memory expansion (double chip) technique, I'll be happy to answer questions via SASE.

Thanks again, Jim Brick

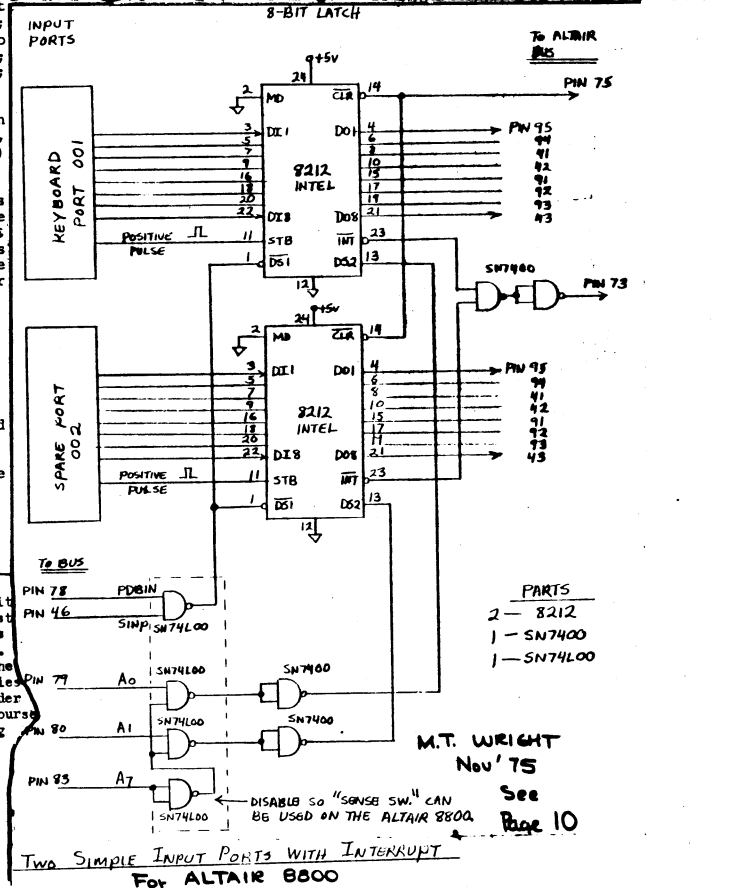
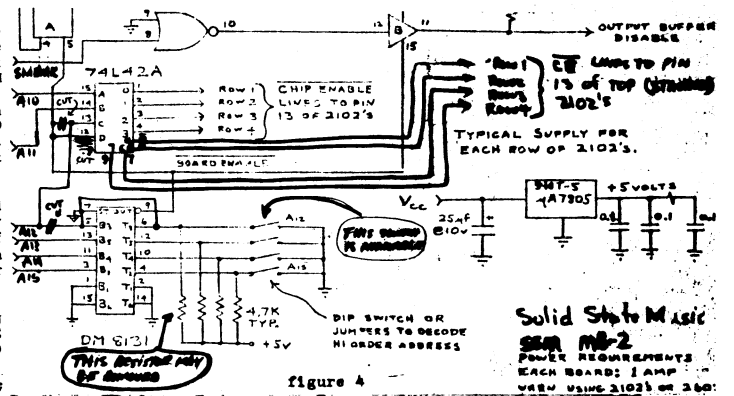
Sincerely,

J. C. B. C.

With 40 years experience in communications and electronics but none at all with computers I am still in the information gathering state. With over \$100 invested in books & other publications I consider the INTEL 8080 Microcomputer Systems User's Manual @ \$5.00 a best buy whether one is interested in the 8080 or not. A close second is the Scelbi-88 User's Manual whether one is interested in the 8080 or not. I have not selected a chip but am leaning toward the 8080 at this time. My equipment will not be purchased from Altair. I sent them a money order for some manuals on Dec 10 and did not receive the manuals till Jan 22. Of course this is not the only reason for passing them buy. The main reason for leaning toward the 8080 is the amount of software that is available and is apt to be available at reasonable prices. It appears to me that only the 6800 and possibly the IM6100 have any chance of approaching or exceeding in this very important respect.

K. Billings
R 2
Champaign
111 61820

Best wishes,
Page 8 *JCB*



January 13, 1976

Altair-680 UPDATE INFORMATION

Dear Customer,

Thank you for your patience in waiting for delivery of the Altair 680 micro-computer.

Due to delays in shipment of the first generation Altair 680, it has been decided to upgrade all Altair 680's to the second generation design. This means that the Altair 680 will include the following items at no additional cost:

- 1) **PROM monitor.** 1702A PROM chip programmed so that you can immediately load paper tape. Also contains interrupt vectors for software, reset, maskable, and non-maskable interrupts.
- 2) **Asynchronous Communication Interface Adapter (ACIA).** Allows machine to transmit and receive a character at a time rather than one bit. Minimizes software needed for I/O routines. Contains crystal clock for baud rate synchronization. User-selectable for RS232, TTL, 60 mA, or 20 mA current loop. Baud rates of 110, 150, 300, 1200, and 2400.
- 3) **Compatible with all Motorola 6800 software.** This software will be available from MITS, Inc.

Herewith is my \$6.00 to start Volume #2 coming. Please continue your good work with this endeavor if at all possible, as none of the other publications with which I am familiar fill the need that you do. This includes FCC, Byte, TCH, and Interface.

Particularly exciting for me was the news that you had a Mike 2, as I purchased one assembled by Tom Kasper some months ago. Along with it came 1K of RAM and a Sudioing cassette interface. Since then I bought a Model 15 Teletype and it is now up and running. Warning, if you ever buy an old teletype, try to determine if it has a synchronous or a governed motor. and stay away from the governed type, or be prepared for some difficulties. For instance, mine seems to be running at about 65 words per minute, which means I had to first determine the speed, and then jigger the timing loops in my software, and this takes days of valuable programming and troubleshooting time. Also, according to "Specialized Communications Techniques for the Radio Amateur" by the American Radio Relay League, Teletype doesn't make gears to convert my set to 100 wpm. If they do, my book doesn't list them. Also, my software isn't portable without modification of the timing loops.

I also have a 4K RAM board which will soon be installed, and a Scanlin Electronics Inc. Model 830 keyboard which seems to be RTL or DTL, with an unknown (to me) code. However, the keys have a nice feel and it looks very pretty!

Jim Farschon and I are in close communication, and he should be able to help me immensely with software systems, especially after we get a hardware stack installed in our Mikes. It is then but a short step (I hope) to a translate from 8080 to 8008 routine.

Have you looked over Martin's modifications (?) of the Mod 8 Monitor? Is it any good?

Does anyone have a good way to run a TTY without tying up my system doing timing loops? Cheap and easy wouldn't hurt.

Does anyone have any software for the TTY that might instruct and amuse a 7 year old?

If anyone wants the benefit of my limited knowledge of hooking up and operating an old Model 15 TTY send an SASE and info on your machine, like does it automatically shift from FIGS to LTRS when you hit the space bar? Does it have automatic CRLF at end of line? Do you know its speed? etc., and I will try to help.

If you guys at MICRO-8 have any info that would be helpful to Mike users here in San Diego I sure would appreciate it. On the off chance, I will send a large SASE and some stamps, and you can keep the stamps if you have nothing.

2909 Adrian St. January 25, 1976
San Diego, CA 92110

Sincerely,
Jim Ward
Jim Ward
AC714 224-1627

While these changes will greatly enhance the Altair 680, they will delay initial shipment for 30-60 days from the date posted on this letter. Should this delay cause undue hardships, we are giving you the option to cancel your order. If you decide not to cancel, you will be given a 10% discount on Altair 680 8K memory boards (to be announced in February and scheduled for delivery in March). To cancel your order or to qualify for the discount, please fill out the enclosed form.

Again, we thank you for your patience.

Sincerely yours,

MITS, Inc.

MY SYMPATHY GOES OUT TO LEE HAIRS (NL V2/81) WHOSE COMPUTER WAS BLOWN BY A CHEAP T.V. SET. TRANSFORMERLESS RADIOS AND T.V. SETS ARE ABOMINATIONS THAT SHOULD NEVER HAVE BEEN PERMITTED BY THE UNDERWRITERS LABORATORY. LEE'S SUGGESTION TO ALWAYS USE AN ISOLATION TRANSFORMER IS A GOOD ONE BUT THERE IS MORE. TUBE TYPE T.V. SETS HAVE HIGH VOLTAGES OTHER THAN FROM THE POWER LINE WHICH ARE POTENTIALLY DANGEROUS TO A LOW VOLTAGE DEVICE. IF IT WERE MY COMPUTER TO BE CONNECTED TO A T.V. SET WITH ITS 300 OR 50 VOLTS DC PLATE SUPPLY, I WOULD BE HAPPIER WITH TOTAL ELECTRICAL ISOLATION. (FOR D.C.)

WHY CAN'T ONE USE OPTICAL ISOLATORS WHOSE INPUTS ARE DRIVEN BY THE COMPUTER? THE ISOLATOR CAN BE POWERED BY 3 OR 4 SIZE D FLASHLIGHT CELLS, ITS OWN SMALL POWER SUPPLY, OR YOU MAY BE ABLE TO STEAL POWER FOR THE ISOLATOR FROM THE T.V. SET ITSELF (OR RECTIFY THE FILAMENT VOLTAGE).

IN THE OLDEN DAYS OF TUBES, DIRECT CONNECTIONS BETWEEN STAGES, UNITS, FUNCTIONS, ETC., WERE RELATIVELY INFREQUENT. COUPLING FOR SUCH AS PULSE WAVEFORMS (WE CALLED IT "VIDEO") WAS FREQUENTLY VIA CAPACITORS, AND FOR THOSE APPLICATIONS WHERE AN ABSOLUTE REFERENCE LEVEL WAS IMPORTANT WE FREQUENTLY USED A CIRCUIT TECHNIQUE CALLED THE "D. C. RESTORER." THE MOST BASIC D. C. RESTORER IS REALLY QUITE SIMPLE. THE CAPACITORS (OF EQUAL VALUE) ARE SELECTED EXPERIMENTALLY TO BE LARGE ENOUGH THAT THE WAVEFORM TO THE T.V. SET IS SATISFACTORY --- VOILA! THE CAPACITORS SHOULD BE RATED AT 500 VOLTS OR SO (DO NOT USE ELECTROLYTICS). D2 WILL NOT ALWAYS BE NEEDED, ITS PURPOSE IS TO COMPENSATE FOR THE FORWARD VOLTAGE DROP OF D1. AN INTERESTED READER WILL PERHAPS WISH TO LOOK THIS CIRCUIT UP IN AN OLDER REFERENCE SOURCE ALONG WITH THE "D. C. CLIPPER" AND "D. C. CLAMPER."

1539 ALCALA PLACE
SAN DIEGO, CA 92111
JANUARY 26, 1976

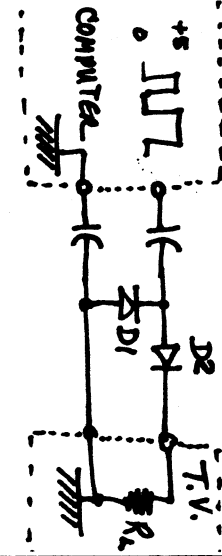
SINCERELY YOURS,

Webb Simmons
HEBB SIMMONS

David O'Meara, 2232 Webster St., San Francisco, CA 94115 (563) 563-4321, extension 2469 or 2461 supplied the following information about the upcoming Douglas PDP-8 compatible machine built around the Intersil 6100 chip. He is now working on a keyboard interface for an original PDP-8. He has a type 34D oscilloscope display and wants to find some graphics hardware for generating alpha-numerics and graphics on a CRO.

ITEM	PRICE LIST (tentative)
DOUGLAS PDP-8 COMPATIBLE COMPUTER	350.00
1/4 K RAM	200.00
1 K RAM	280.00
UART (non TTY)	135.00
UART (TTY)	155.00
I/O BRD/BOARDS (local)	90.00
64 WORD STARTER BOARD	125.00
1 K PACKAGE	105.00
START UP BOARD/RACK	1500.00
BUS & POWER SUPPLY	1500.00
1 K PACKAGE WITH ONLY 1 K RAM	875.00
RACK & BUS (19 inch)	105.00
POWER SUPPLY	110.00

Douglas Electronics, Inc., 718 Marina Blvd., San Leandro, CA 94577
(415) 483-8970



CHARLES M. PERIAN
1817 N. Edgewood Ter.
Ft. Worth, Tx 76103
817 534 2071

1/25/76

The continuing existence of the newsletter is good news. All of my issues are dog-eared from heavy usage, and continue to be a major reference source. Thanks for all the hard work you've done.

A number of members of the North Texas Computer Hobbyist Group have obtained used Syner-Data DEITA terminals (formerly belonging to Cartiphrion) on the local surplus market. We have not obtained documentation or information on parts sources; and, should any of your readers have such information, we would be most interested in hearing from them. I will be happy to pass on any information available to me if there are others in a similar situation.

I have an Altair 8800 up and running (mostly) with MITS 8K BASIC and ASSEMBLER. I'm using a borrowed ASR-33, when available but hope to get the S-D DEITA on line, along with a cassette interface based on the BYTE conference recommendations. The deposit circuitry works perfectly but the examine circuitry, as well as the protect on 2 MITS 4K boards is still marginal. Fortunately the software can be utilized without these panel functions.

Thanks again for the newsletter.

Sincerely,
Charles Perian

Micro-Loader/Monitor Rev.B

Introduction

The program that will be described in the following pages was developed to be used on the Altair 8800 computer to simplify the loading and execution of programs written in octal. The whole Micro-Loader/Monitor is only 256 bytes long and can be loaded into one PROM like the 1702A* from Intel. The program should be located in the upper most page of memory which is 377, 000.

I/O Used

The Micro-Loader/Monitor program is written around three computer ports. Input port 001 is for the keyboard interface (7 or 8 bit ASCII must be used) and the computer has to be under a keyboard-strobe to CPU interrupt-line control. Input port 002 (optional) is for a paper tape or card reader interface (8 bits) with strobe control. Output port 001 is for displaying the results of the special control codes used in the Micro-Loader/Monitor routine.

Input port 001 and 002 are software selected by the sense switches (A8 thru A15) on the front panel of the Altair. Placing switch A8 to a one and all the other sense switches to a zero will select port 002. Placing the sense switches at any other eight-bit code will select port 001 (keyboard). The sense switches can be used for a third input port in a software program, just don't use the code 001.

Control Codes

- X(lower case): Execute a program from the starting address set by the I-code. The program must end with a RET(311) instruction if you want control to return to the Micro-Monitor after execution.
I(lower case): Load registers H & L into memory to be used as the starting address of a program to be executed.

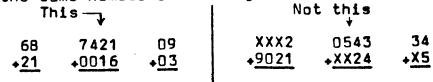
*....The 1702A is available already programmed from Solid State Music, 2102A Walsh Ave., Santa Clara, Calif. 95050 Write for price quote.

- L(lower case): Load register L with the character that was constructed.
H(lower case): Load register H with the character that was constructed.
> or (upper case): Get character from memory, display character and increment memory address.
< or (upper case): Decrement memory address, get character from memory and display.
CTRL-0: Construct character in octal (three numbers).
CTRL-L: Display low memory address (reg.-L).
CTRL-H: Display high memory address (reg.-H).
CTRL-B: Load register H&L into the stack pointer.
Return (CR): Load constructed character into memory and increment memory address (H&L). Note: "CR" can be changed to any other ASCII character of your choice by using this program.

Special Routines

The Micro-Loader/Monitor Rev.B also has three subroutines written into it. Use a Call(315) instruction to use them.

Decimal addition routine (address 377,311)
1. Set registers D&E to the starting memory address of the augend.
2. Set registers H&L to the starting memory address of the addend.
3. Set register C to the number of BCD pairs in the addend.
Note: Be sure the augend and addend are the same number of BCD digits.



- 1. Don't care state.
4. Call address 377,311.
5. Results put into memory at starting memory address set for D&E and up.

.... Routine from the Intel 8080 Microcomputer System Manual, January 1975.

Decimal subtraction routine (addr. 377,325)

- 1. Set register D&E to the starting memory address of the minuend.
2. Set register H&L to the starting memory address of the subtrahend.
3. Set register C to the number of BCD pairs in the subtrahend. Watch out for don't-care BCD digits, see note on decimal addition.
4. Call address 377,325.
5. Results put into memory at D&E starting address and up.

Binary multiplication routine (addr. 377,347)

- 1. Set register A to the value of the multiplier.
2. Set register E to the value of the multiplicand.
3. Set register D to zero.
4. Set registers H&L to zero.
5. Call address 377,347.
6. Results will be in registers H&L.

How to initiate the program. (Be sure to un-protect memory)

- 1. Turn-on computer.
2. Hold stop-switch to stop position and reset the computer.
3. Examine location 377,000.
4. Switch to run.
5. Load H&L with the maximum address of memory that is in your computer.
6. Load the stack pointer by typing CTRL-B.
7. Now load H&L with the starting location of your program to be loaded. Start programming and Good luck!
(Be sure not to destroy any of the byte instructions from address 000,070 to 000,077 since this program uses RST-7.)

Change "CR" to a new character.

- 1. Initiate program.
2. Type 000-H and 073-L.
3. Type @.
4. Now select and type in the new ASCII character and type carriage-return.
5. Type CTRL-0 to get back to octal load.

Branch to a new output routine

The Micro-Loader can be set-up to branch to an additional output routine needed for future peripherals like a CRT display, printer, etc. This modification is done by changing three bytes in the RST-7 location in memory.

Map of RST-7 loaded by Micro-Loader/Monitor. Table with columns: Address, Instruction, Comment. Rows 000-077. Includes instructions like RET, XXX, 015, Return, XXX, 311, and 000.

Addr. 377,377 -

CHANGE THIS BYTE 377

Bill Harnell, Scarborough, Ontario, M1G 2T1
165 Merbley Square, January 28, 1973

First and foremost, enclosed please find my cheque for \$6.00 for an additional one year's subscription to the NL. Please do continue to publish the letter. Unfortunately for me, I didn't know of the NL until late last year; too late much to my chagrin. I got involved with Mini-Micro-Mart last April 25 by ordering some simple things from them. One 4-card extender for my Altair 8800, 4 100 pin edge connectors, 2 Viking 100 pin edge connectors and the request that he charge the purchase to my Mastercharge account. Now I know why he doesn't use Mastercharge.... he can't get the service! The order was reconfirmed June 29th. I received a letter from Maury August 27 thanking me for my letter. The last paragraph goes like this " Now that I have turned the page and realize that we have talked on the phone, and that you did send us an order; I will later today check to see what we have shipped you and what we still owe you".

I had sent a cheque June 29th, which he quickly cashed (July 3rd) I had received no answer by Sept 15 (in the way of received goods) so I wrote him again. He responded on an inter-office memo form Sept. 29 saying that he regretted not being able to find any record of my order. Would I please send him a copy of my cancelled cheque. This was done Sept. 29th. By Nov 10th still no word from dear old Maury so I called him for the third time. (You'd think he'd recognize me by now). A postal strike was upon us and my Altair's progress was very slow. I needed the expander board. He told me then that the merchandise had been shipped October 13th and that he couldn't see why I didn't have it yet.

To make a long, and final, story short, I did finally get the stuff Jan 7/76 after a very long and trying time. The expander board had 6 open lands in it, took over 2 1/2 hours to solder in versus about 25 minutes for the MITS unit and I have my wife's solemn promise that she'll kick my arse from here to Bloomington, Illinois if I so much as mention buying from "dear ole Maury" again regardless of the relative attractiveness of his promises! Amongst his other attributes is that of being able to lie very convincingly. ENUF!!!

Now..... the good news. I cannot speak too highly of one other supplier, Process Technology, their products and their responsiveness. I have found them, particularly Terry Holmes, very eager to help. Their products appear to be of the highest quality and their answers to my dumb pleas for assistance have been almost immediate. One very small disappointment was the lack of sufficiently comprehensive information for me to effectively put my 3P+S to work as I would have liked. I have been assured that this data is being rewritten and will be released in the relatively near future. An order for 8K of their low power Ram was also delivered 'bang on'. They have been somewhat delayed with deliveries of the ALS-8 and SIM-1 by late board deliveries from their suppliers but I fully expect them to live up to their schedule. When they do screw something up, do they ever get their tails in high to make up for any inconvenience which may have been caused!

Thanks for the shoulder to cry on. I just had to get that out of my system. I have also been very pleased with deliveries by S.D. Sales of Dallas, Bill Godbout, Scelbi, and James. Too bad that James and Digi-key

(also excellent response) do not accept Mastercharge accounts. I'd be more than pleased to pay an additional 5% just to get the attention and the variety of items they carry. Maybe they're listening and can do something of that nature for people who wish to order in that fashion; simply forget the discounts as it costs them 5% to be able to use the credit system.

My Altair at present has 1K of MITS RAM, an EBCDIC keyboard takt is in the process of learning ASCII via EPROM, an ASR 32 which is (and so am I) also learning to use ASCII in conjunction with the Pop. Electronics Monitor. Waiting in the wings are an IBM selectric printer, a beautiful floppy disc, the previously mentioned P.T. ALS-8 and SIM-1, a 60 cps paper tape punch and a HS paper tape reader. I'm trying desperately to get a cassette unit attached to my 3P+S (my switch fingers are all raw) but I guess I'm too long an ambition and too short on moxy to get Don Lancaster's interface working with it. I would appreciate any help which any reader could provide to this end and to getting Baudot/ASCII/Baudot hardware installed. A letter to Roger Smith resulted in the information that he had "run out of copies of the article" Of course, the letter was a form letter conveniently printed on a photocopier!!!! By the way, before you ask, I did send a SASE and \$1.00 U.S. in an attempt to cover his expenses. Perhaps it wasn't enough. We'll wait for the March/April issues of R-E.

As a matter of interest, I have learned more about computers since last April 15th when I received my ALTAIR 8800 than I was able to learn in the previous 21 years of being a customer engineer for a computer manufacturer. (Can't explain why since the interest was always there. I suppose that the point of view is slightly different when you own it. Your NL has contributed more than a little to this educational effort and I would like to express my thanks and appreciation for it.

ENUF!!

Best regards,

I'll write again, at length, later.

Bill
Bill Harnell

First, I apologize for being so slow with the enclosed \$6 and SASE. I hope you decide to continue the NL.

Second, I hope I can contribute to the NL in the not too distant future. I have a design for a graphics display using 256x256 dots on a standard TV. It uses an 8K block of computer memory to generate the grid. It's fairly simple and economical since no I/O ports are used and the CPU can use this 8K block of memory if graphics are not being generated. (or even while graphics are generated).

I am very busy right now finishing a Master's degree at the Univ. of Florida (EE with Biomed specialty). I will be moving to Indiana in August to attend Indiana Univ. Med. School. I will have more time to "play" between now and August and will hopefully get this project finished. I'll let you know how it comes out.

502-11 S. W. 34 St.
Gainesville, Florida 32607
January 29, 1976

Sincerely,

Lawrence J. Richter
Lawrence J. Richter

Page 11

We have just recently formed the Ithaca Computer Group. Mostly homebrews with a scattering of Altairs, Intellecs, and a lot of would-bees. Anyone interested and in the area is welcome. Call me at 273-2339.

All good computer freaks know that the more you buy, the less each one costs; SO one of our first orders of business is getting together a group order of RAMs. At present it looks like we will be buying some 500 91L02 (2102-1 equiv. 500 ns.) chips for locals. Sure would like to increase this to 1k or more. If all goes as expected the price should be about \$1.50, but this is NOT firm yet. We also are purchasing over 1000 16 pin sockets, at around 16¢.

So if you need RAM send me a SASE with all the vital info plus how many RAMs, and how many sockets you need. The price should be settled in around 3 weeks, with the order scheduled for 6 weeks. The latter is flexible, and the order may even be shipped in two parts to allow time for everyone.

SEND NO MONEY, PLEASE. Just the SASE and I'll contact everyone when the price is set, so that you can decide if the price is good and settle on a final order.

And in the news- Rockwell Corp. announced in Electronic Design last month their new LSI Floppy Disk controller. The whole ball of wax, as they say. According to the release, Rockwell expects Floppy prices to drop to around \$250. by next year.

I also have a pre-production sample of Texas Instruments new TMS 5501 controller for the 8080. It is nothing short of fantastic. 1 serial I/O (UART), 1 parallel IN, and 1 parallel OUT port, vectored interrupts, programmable delays for the interrupts, masking + more all on one chip! My entire I/O is this and a decoder. The thing is set up for memory mapped I/O so you get to use all those lovely memory instructions for your ports. Should be out in a month. I may be able to get a few but they probably won't be cheap until somebody else gets in on the act.

If anybody in the area (or even not) needs help or info call up and I'll do my best.

Sincerely,

Steven Edelman
Steven Edelman

Steven Edelman
204 Dryden Rd.
Ithaca, N.Y. 14850

On January 19th, I sent a Bank Draft by registered mail for \$680.00 to THE DIGITAL GROUP. Yesterday I got my 'return receipt requested' back. They had received my order on January 23rd (sure took that letter a long TIME). I hope to have the system up and running in about 3 months after delivery.

I looked at all of the systems and the digital group's looked like the best for me. I met Dr. Suding at the Dayton Hamfest last year and was impressed with his work. I would like to correspond with others who are assembling the Digital Group System.

One company from whom I've had great service is MESHNA Lynn, Mass. I just placed an order with Delta Electronics and haven't heard from them yet.

Keep up the good work and I hope to be reading the News Letter next month.

January 27, 1976
R.R.#1, Box 479
Berea, Kentucky
606-986-3072

40403

Yours truly,
F.W. Seals

martin research

3336 commercial avenue / northbrook, illinois 60062 / (312) 498-5060



February 2, 1976

MICRO-8 COMPUTER USER GROUP NEWSLETTER
Cabrillo Computer Center
4350 Constellation Rd.
Lompoc, CA 93436

Our Model 471 CPU board, based on the 8080, is now being shipped in quantity. It is being used by several industrial customers as the intelligent controller in their equipment.

We have announced a new price for this computer. The 471 CPU board, complete with 8080A microprocessor, comes completely assembled and tested for \$149.00. The board is completely socketed, allowing for easy troubleshooting; all MOS parts are first-quality, as usual--no thermal rejects, no factory seconds. Three interrupt levels are provided; DMA is supported; and there is an automatic reset if the interrupts have been masked for an excessive period, while an interrupt request is waiting. The board includes power bus drivers, which allow for full system expansion--25 TTL loads on the data bus, and 30 TTL loads on the address bus. As planned, the 471 CPU board is compatible with our earlier 8008-based computer, and will be compatible with our upcoming MIKE 65 (6502) and MIKE 68 (6800).

A MIKE 3 computer is made up of the 471 CPU board; a 420 Console board (keyboard plus six decoded digits); and a 423 PROM/RAM board (512 bytes of RAM, plus an 8080 Monitor program in 256 bytes of PROM). This three-board system now lists for \$395.00, fully assembled and tested.

The new price for our 405 4K RAM-----static, 450 ns access time, 5.0 V at 1.0 A max.--is \$195.00, fully assembled and tested.

And, our book MICROCOMPUTER DESIGN went to the press last week in an extensively revised edition, with lots of new material on the 8080. It will be bound as a paperback book, and will sell for \$25.00 in single quantities. (Volume discounts are available; first-edition holders can write for details on a special discount.) We expect to be able to ship by the last week of February. We have a special through March--MICROCOMPUTER DESIGN plus the complete MIKE 2 MANUAL, \$30.00 postpaid.

Finally, our modular micro series is now distributed through Semiconductor Specialists--for your readers who are associated with industrial purchasing. Semi Specs has offices in LA, Dallas, St. Louis, and a number of other Midwestern cities, as well as in England and Germany.

Keep up the good work!

Sincerely,

KB/hs

Kerry Berland

modular micro consulting microcomputer design

I believe that the newsletter should go on, adapting itself to the changing needs of the small computer community, irrespective of the existence of other groups, letters, and magazines. Don't be afraid to shift emphasis as time goes on to included Altairs, (8080 and 6800 based), 16 bit machines, the whole banana, wherever the interest goes. The important thing not to change is the informality, the emphasis on user contribution and free expression. A limited amount of abstracting from other pubs is useful to call readers attention to sources of which they may not be aware, but don't become an abstract journal either... hold costs down by giving only a sketch and then referring the reader to the source.

I make these recommendations for continuing in spite of the fact that I now subscribe to Byte, Interface, Computer Design, Proc, IEEE, Trans. on Electronic Computers, TCH, PCC, HP65 group, and about fifteen (15) other journals in the field.

Very truly yours,

William L. Paterson

Box 1396
Santa Monica, Ca. 90406
1 Feb. 1976

To Our Customers:

Thank you!!!

Since our last catalog, tens-of-thousands of orders have poured in, causing our sales to double in one year.

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Joseph S. Bergson
General Manager

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FIRST CLASS MAIL

Robert Baer
921 Lincoln Ave
Palo Alto, CA

94301

Dear Hal & Group: February 4th

Previously I wrote asking you for information about the IMSAI 8080 computer. Well, I went ahead and ordered one with 1K of RAM. I am having it sent to my new address in Germany. I will let you know what kind of service I get and how the assembly goes.

Please change my address, effective this date, to read as follows:

Msgt. Vern Brannon
7450 TIS, Box 6924
APO New York 09012

Sincerely,

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Vern Brannon

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