

WISCONSIN COMPUTER SOCIETY

NEWSLETTER

Volume #2, Issue #4 April 1977 Don Stevens, Editor

MEETING NOTICE

Our meeting will be held at 9:00 a.m., April 2, 1977, at the WASHINGTON HIGH SCHOOL, located at 2525 N. Sherman Blvd., Milwaukee. Room #463 (Go in entrance door where old section & new addition meet) See below map of general area. (Sherman Blvd. is 4300 West)

PROGRAM AGENDA

The meeting will begin with a tour of their Data Processing Facilities, as well as their Business Training Area. They have a PDP-11 System which is operated as a Time Share System (30 users at a time). After the tour, we will have our regular business meeting. One of the topics of our business meeting will be preliminary work on the structure of our organization.

GROUP PURCHASES

If any member is interested the regular Group Purchase, or the special group purchase from Semiconductor Specialists, please bring your cash or checkbook.

Take Highway 94, get off on exit Highway 41 North; go north until Lisbon Ave. exit, go one block North to North Avenue and turn right



Don Stevens

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414-467-6314

A computer is a computer, is a computer, is a computer, until you have seen OSI's new 16K Challenger with GSI 110 Floppy in action. That's right - in action at Microcomp at Fond du Lac. Load OSI Extended Basic in just a few seconds - not to mention RTS-65 operating system modeled after DEC's RT-8 for the popular PDP-8 System. The ultimate system is OSI's new package featuring:

1. 16K Challenger (Video or Serial Output)
2. Single Drive Floppy with 100K Bytes of Software (Extended Basic, Games, Business Programs, Assembler, Editor, etc.)
3. Complete Terminal System - 64 Character Line/16 (2400 Baud)
4. 9" Video Monitor

All at the very special price of \$2599.00 - It is complete, just unwrap it, plug it in, and you are ready to roll. MICROCOMP is located at 785 S. Main, Fond du Lac (across from South Town Shopping Center)

PDP8/11 SIGNEWS

By Allen Kossow

This is the first (and hopefully not last) column on the activities of this groups members in the area of PDP-8 and PDP-11 minicomputers. I also hope to get into various other related areas such as computing devices utilizing the IM-6100 PDP-8 emulator and the MCP-1600 (better known as the LSI-11).

It is suprising to find out how many people own DEC computers. To my knowledge, there are well over 20 PDP-8's of various vintages in use around Milwaukee, and many more people who have access to them at work or school. The same is true of PDP-11's. Although the cost is prohibitive for someone who want one just for use as a home computer there are a number of LSI-11's either in use or will soon be put in use in homes around the area.

One of the first things that I hear when talking about when talking about the PDP-8 is how obsolete it is compaired to the microprocessors availible today. I totally agree that the chips availible today can run circles around the "eight", but the fact remains that many of these devices are in the field today, have been there for perhaps ten years, an eternity for technology, and am sure will still be there ten years from now. Since they do exist, and that these processors are still one of the most popular and perhaps most widely used computer today, that to ignore their existance because of advances in the state of the art is if nothing else a diservice to those who have worked on them.

Considering that there are so many people who have in the past or are now working with PDP-8's there must be some interest in having one to play with in the privacy of one's home. Which is one of the reasons for writing this coulmn, to help promote the exchange of ideas between hackers.

Since I have a very strong personal interest in PDP-8's (it was the first computer that I ever used) I have mentioned it first. But equally of interest is individual use of the PDP-11 computer.

The PDP-11 is of much later design than the PDP-8 and as such reflects much of the progress which has ocured in computing and semiconductor science.

But why buy a technologicly obsolete device (the PDP-8) when a much superior device is availible? If you have never worked on a PDP-8 I would not reccomend it to you. It is a design which represents a compromise between cost and performance with the emphasis being placed on cost. In it's time (1965) the PDP-8 was the most inexpensive computer availible. It followed in the tradition of many other Programmed Data Processors (PDP) put out by Digital Equipment Corporation, whose PDP-1 was the first computer to sell for less than a million dollars (cir late 50's)

Being an effort to build a computer as cheaply as possible, the PDP-8 was designed to be as efficent on a gate level as possible (remember the

(CONT ON NEXT PAGE)

PDP-8 was designed when all digital logic was built from discrete devices) and in doing so, created the strage, by todays standards, achetecture.

The PDP-8 is basicly a single register machine, with a second register (the MQ register) added in later models. The major register is the accumulator with all data transfers occuring through it. The instruction set is archaic, representing as simple a conversion from machine code to machine operation.

The PDP-8 has eight sets of instructions, specified by bits 0-2 of the instruction word:

0XXX....And the contents of the addressed location to AC
1XXX....Add the contents of the addressed location to AC
2XXX....Increment the contents of AC by 1 and skip the
 next instruction if zero.
3XXX....Place the contents of AC at specified memory location
 and clear the AC.
4XXX....Jump to a subroutine storing the next instruction address
 after this one in the first address of the subroutine.
5XXX....Jump directly to the addressed location,do not pass go,
 do not collect 200.00.
6XXX....Perform the I/O operation specified by bits 3-11
7XXX....Operate instructions, where all AC bit rotations, swaps,
 and compliments occur. The closest thing to microprogramming
 the PDP-8 uses

Using these instructions, though, some of the neatest programs have been written and documented, presenting the best reason of all for keeping PDP-8's around. They do their job(s) and do it well.

As an example, one of the best working single user operating systems was designed for the PDP-8 and was the product of years of work by many people accross the country....OS-8

As a contrast, there also exists a number of different Edusystems, multi-user timesharing systems, which range from the puny Edusystem 5 to the sophisticated Edusystem 50 (or TSS-8) multi-user multi-language timesharing system.

PDP-11 software, on the other hand, because of it's relative youth compaired to PDP-8 software is prone to many more bugs and glitches. Anyone who has used RT-11 can certainly testify to that.

So, consider the PDP-8 today if you would like to draw upon the knowledge of those programmers that have gone before you (as I have heavily while trying to figure out how to make those thinking boxes do something I wanted them to) It would be if nothing else a first step,if necessary, to your understanding of computer operation.

Which, in a roundabout way, leads me to one of the first (and only) bits of information this month.

I contacted the University of Wisconsin-Milwaukee in regards to buying time on their PDP-8 timesharing system and was told that there was no problem.

The UWM timesharing system runs Edusystem 50 and has Basic and and a PDP-8 assembler. Focal and Fortran II are available but I don't know if they are on the system.

Cost of using UWM's TSS-8 is \$1.50 per connect/hour, which is the most inexpensive timesharing fee in the area. You have to do an awful lot of programming before it's cheaper to have your own system.

Till Next Month:
Allen Kossow

BUS DRIVE CHARACTERISTICS *** Submitted by Allen Kossow

<u>Type</u>	<u>Std. TTL Drive Capability</u>	<u>"LS" Drive Capability</u>
7400, 02,08	10	50
7403,05,09	10	50
7437	30	150
74257	12	60
8095, 96, 8833	20	100
NPN Transistor	50	250

National Semiconductor & Commodore Business Machine to introduce Low Cost Video Home Computers. Priced at approximately \$300.00, these systems will have full alphanumeric keyboards, a built-in BASIC Software ROM, a general I/O Port and expandable RAM, use TV displays, and come with computer controlled high speed tape cassette drives for program storage. National will use the 8080 chip while Commodore will use the 6500 series chip.

Intel 8085 Improves 8080 Cost Performance according to Intel. The 8085 is 100% software to the 8080A. It operates with a 3Mhz Clock, single plus 5 Volt Supply, Clock Generation, System Control and Interrupt prioritizing on board.

Cromenco offers Z-80 microprocessor system with 4 Mhz speed. Price of system is \$595.00 in Kit Form.

MicroFair International is scheduled for October 1977 in Chicago.

Information on joining the DEC User's Group will be given out at the meeting.

American Laboratory - March 1977

Microcomputer Interfacing - Covers the use of 8080 logical instructions. (3 pages)

EDN - March 20, 1977

"Even bare-bones development systems make good learning tools". This tutorial project illustrates how a Microcomputer System can operate a Keyboard Type Musical Instrument. In this case, a KIM-1 one board Microcomputer from MOS Technology is used. (8 pages)

"When learning programming from scratch, begin with the BASICS". A good article (1st installment) on Programming in "BASIC" language. (5 pages)

Digital Design - February 1977

Microcomputer Software - How to optimize Timing & Memory Usage. Covers the Z-80 chip. (8 pages)

Electronic Design - March 29, 1977

"Your microcomputer I/O Software" may well determine its over-all performance. In Real Time applications, I/O timing means everything. (8 pages)

Last month, I announced in the club Newsletter that Semiconductor Specialists offers PROM programming for 1¢ per word. They will accept programming information in the following formats:

1. Marks sense program cards
2. TWX
3. ASCII punched paper tape
4. Binary punched paper tape
5. Master P/ROM
6. Customer's own truth table

Programming Cards are available thru your Editor and/or the local Semiconductor Speciallists branch office.

Complete info will be available at club meetings.

The following items can be purchased thru Semiconductor Specialists on our Club Purchase Plan:

<u>Type</u>	<u>Mfg.</u>	<u>Qty.</u>	<u>Price</u>
TMS2708JL	TI	1-99	\$30.00
2102L1PC	F	100-999	2.13
N8T97B	SGN	100-999	1.06

Total purchase must amount to \$1000.00

SCI Systems, Inc. announces new printer. Priced at \$300.00, this printer operates at 2,200 characters per second (duplicates a CRT screen in a second) and prints in 5 by 7 dot matrix.

UW Extension - Milwaukee is offering a course on "Microprocessors" April 18-22; Fee is \$375.00

CARDIAC (Cardboard Illustrative Aid to Computation), a Bell System educational aid developed by Bell Telephone Labs, with 53 page manual is available for \$4.95. Advertised as a Computer on a Board.

Radio Electronics will give club members a special rate of \$6.00 per year for a one year subscription. Contact Don Stevens if you are interested.

National Computer Network of Chicago announces Time Share System for Motorola M6800, Intel 8080, Intel 4040, and Fairchild F8 users.

The TPR-1 Raeco Optical Readers have been purchased (MICROCOMP) and they may be available for pickup at meeting.

Available from Club Library - NEC Microcomputers, Inc. uPD372D
LSI Floppy Disc Controller Chip Users
Manual.

I will bring to the meeting a three page listing of electronics parts that can be purchased thru a local source at very reasonable prices. (IC's, Regulators, Op Amps, Transistors, Zeners, and a new B&K 1472C 30 Mhz Dual Trace Scope)

FOR SALE - 14 issues of BYTE magazine (all except May 1976). Contact

Irvin L. Schroeder
1815 North 4th Street
Sheboygan, Wisc. 53081

TI announces that it will be selling prototypes of their 65,536 CCD memories next month. These samples will cost \$195.00 each, but the projected selling price in 1978 is \$13.00 each. TI's TMS 3064 is organized as 65,536 x 1 bit, in 16 line addressable loops of 4096 bits.

Below is a list of those who have volunteered to be coordinators,
LETS HOPE WE CAN EXPAND OUR TECHNI-INFO-BANK AS FAST AS COMPUTING
TECHNOLOGY IS EXPANDING

6502.....	Angelo Orlandoni		
	Rt 1 Box 133		
	Mt. Calvary, Wi	53057	1-753-2963
6800.....	Leroy Danner		
	7817 36th Ave		
	Kenosha, Wi	53140	1-694-6396
8080.....	Jeff Kucan		
	1638 S. 57th St.		
	West Allis, Wi	53214	545-7817
PDP-8/11			
IM-6100.....	Allen Kossow		
	11400 W. Seven Mile Rd.		
	Franksville, Wi	53126	425-5773
Ham Radio.....	Nyles Preist		
	2002 Deming Pl.		
	Fond du Lac, Wi	54935	1-921-4669
Computer			
Software.....	Todd Voros		
	3721 W. Juniper Ct.		
	Milwaukee, Wi	53209	

EDITORS NOTE: Much of the information contained in this Newsletter was supplied by Allen Kossow. Allen gave us much of his time to supply us with info and his comments on our club structure.

While we may not all agree with Allen on all of his comments, we must agree that he is making an effort toward improving the structure of our club.

For almost a year, I, alone, attempted to guide our club progress. This was only because I could not get others to volunteer to assist me. Finally, in December of last year, I had to appoint a new club chairman because nobody would volunteer. I personally think Don Senzig is doing a good job as our club chairman for 1977.

We have made good inroads but more effort is needed from more members if we are to have a truly great organization. There are plenty of members with the knowledge and capabilities to improve our organization.

Let me hear from you if you wish to comment on Allen's letter, and/or have time to put forth to give to our club membership.



Don Stevens, Editor

SCCS Coordinators:

Secondary Schools
Art Armstrong
3345 Moore Street
Los Angeles, Ca 90066

Statistical Applications
Barry Gerber
Dept of Political Science
CSU Fullerton
Fullerton, Ca 92634

Medical Applications
Lou Fields
11662 Sunset Blvd.
Los Angeles, Ca 90049

MITS Basic
Jon Walden
11557 Sunshine Terrace
Studeo City, Ca 91604

Games
George Tate
3544 Dahla Ave.
Los Angeles, Ca 90026

Commodity and Stock Price Prediction
Mary Stevens
11745 Montana Ave#110
Los Angeles, Ca 90049

Computer Graphics
John de Longpre
11464 Bailey Dr.
Lowell, Mi 49331

Biofeedback
Larry Press
1702 Ashland
Santa Monica, Ca 90405

Electronic Music
Prentiss Knowlton
255 N. Madison Ave
Pasadena, Ca 91101

Astrology and ESP
Al Manning
ESP Laboratory
7559 Santa Monica Blvd
Los Angeles, Ca 90046

Programs For Small Children
Joanne Verplank
1919 Menalto Ave
Meno Park, Ca 94025

Power Supplies
Fred Schultz
3734 W. Slauson
Los Angeles, Ca 00043

Biorythms
Art Childs
335 N. Adams #210
Glendale, Ca 91206

Voice Synthesis
D Lloyd Rice
821 Pacific#4
Santa Monica, Ca 90405

Mark-8 Hardware, Software
Ronald Carlson
14014 Panay#255
Marina del Rey, Ca 90291



FREE FREE

FREE FREE

50 copies of Mits March issue of

COMPUTER NOTES available to clubmembers at the meeting.

WHERE ARE WE HEADING? AN OBSERVATION BY ALLEN KOSSOW

A little over a year ago, a group of slightly over two dozen people got together for the first meeting of individuals interested in personal computing systems. Since that time there have been over a dozen more meetings, but as yet there has been very little done to establish firm purpose and direction for this group other than deciding that there will be another meeting next month.

As fewer and fewer people attend those meetings, and apathy towards the organization increases, it is necessary now to step back a bit and examine as a whole the events of the past and to best determine where the organization should be heading.

The first thought after getting my monthly meeting notice is whether it is worth my time to come down to the meeting at all. Judging by the percentage of members that do not attend, I can see there is a majority of people who don't think so.

One of the major reasons for a organization of this type is to make it convenient for individuals with common interests to exchange information and to stimulate new ideas. When there is no reason to use that organization or if it becomes too difficult to use, the organization ceases to function and dies.

If present trends within our organization continue, I cannot see any hope for it's growth and can see no reason why any other member would feel differently.

I noted at a meeting earlier this year that an increasing number of "splinter groups" have started to form from people that have met through this group. It is unfortunate that no more than token efforts are occurring to link these groups together for the betterment of everyone interested, not only for those that live in the Southeastern Wisconsin area, but across the country.

Since the obvious trend within specialized groups center around a specific type of processor, it is obvious that the most logical approach to communications would be through a group of MPU Coordinators. The MPU Coordinator would be the link between members of the organization and would serve as technical ombudsman for members and other people or groups interested in solving, perhaps, a specialized problem related to personal computing systems.

A group of "coordinators" was formed almost three months ago, but at the time very little was said as to their function. As coordinator for the PDP-8/11 SIG (Special Interest Group) and proponent of the coordinator scheme, it is best that I present what the purpose of a SIG Coordinator should be.

The term "Coordinator" is not truly accurate. The SIG Coordinator has no right to force anyone in the organization to do anything. Instead, the coordinator must be the person who people come to with information on their own or their groups activities that they would like other members to know of, or the person that members can come to with questions or problems and have them (hopefully) answered or at least put in touch with someone who can.

The key to the whole scheme is cooperation between individuals and group coordinators. If there is no communication between them the entire purpose of coordinators disappears.

THE FIRST STEP IN MAKING THIS WORK IS TO ESTABLISH CONTACT AND TO GET TO KNOW THOSE MEMBERS THAT HAVE VOLUNTEERED THEIR TIME TO BE GROUP COORDINATORS IN AREAS THAT YOU ARE INTERESTED IN.....

As of the time of this writing (early March) I have not even heard from one member interested in PDP-8's or 11's. The same is true of all other coordinators I have spoken to. I am looking forward to hearing from anyone interested in DEC equipment or areas related to them and finding out what is happening in the area.

Starting this month, Jeff Kucan-8080 coordinator, and myself, will be writing a column related to our areas of specialty. The more information that we get from the membership, the greater will be the exchange possible between everyone not only within the club but with members of the other organizations across the country.

The structure that I have proposed previously will give structure and organization to the diversified group which comprise the membership of this organization. I would like now to propose a structure for the organization itself. Investigation was started at the last meeting into incorporation as a non-profit educational society, a move which would be beneficial in not only legal but structural terms.

As it now exists, this organization is nothing more than an informal gathering of computer enthusiasts, with no structure beyond that of chairman, who alone bears the brunt of the functioning of the group. Since a representative structure is being established with the voluntary coordinators, I propose that those same people could also help to distribute the responsibilities of our group's functioning.

The coordinators would make up part of the group's board of directors with the other members being editor of the newsletter, financial officer and chairman, who would maintain the daily affairs of the organization.

The core of a structure for an interesting and very useful organization exists with those who have volunteered their time to serve as the group's first coordinators. I'm sure as areas of interest increase, so will the number of coordinators.

The Southern California Computer Society has started a similar group of volunteers which I'm sure would be interested in hearing from many of you.