



DECUS 12 BIT SPECIAL INTEREST GROUP
NEWSLETTER

July

Number 29

1978

Contributions and correspondence should be sent to:

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(Please include reference to Newsletter number and page when inquiring about material published.)

NEWSLETTER SUBMISSIONS

The Newsletter is currently published bi-monthly in the odd months. The deadline for each issue is the last Friday of the preceding even numbered month. Submissions are accepted at all times and are normally used in the next issue to go to press regardless of date of receipt. The deadline for ready-to-use material for the next Newsletter is 25-August-1978. Material requiring editing/re-typing should be in earlier. Ready-to-use material should use an area 6 1/2 inches (16.5 cm) wide by no more than 9 inches (23 cm) long on each page. It should be single spaced on white bond paper whenever possible and must be reasonably clean, legible and sufficiently dark for good photographic reproduction.

SIG COMMITTEES AND WORKING GROUPS

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Lee Nichols - see above

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Symposium Software Exchange Committee

Send copies of software you wish to exchange at the next U.S. symposium to the appropriate committee member for preparation:

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RTS/8 WORKING GROUP NOTES from Lee Nichols

Notes in brief: The release date for RTS/8 V3 has slipped until sometime in the first quarter of 1979, with field test starting in the November-December time frame. Development work is proceeding on V3 and no major problems are foreseen. The last newsletter contained the functional specifications for version 3. The development of DECNET/8 is also progressing, but I have not heard any target release date as yet.

The source changes to MCR (V2 or V2B) to log time in seconds appears below. The changes are all on one page (except for one location), and fit in the same core page. The modification is fairly straight forward, and basically uses a division subroutine in place of the original calculation loops. The source listings are coded along the left margin

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to anotate the changes. A (D) code stands for delete, the lines coded (1) in the modified source replace the lines coded (1) in the original source, and so on. (The MCR symbol ACL conflicts with the PDP-8E, 8A command "Load the AC from the MQ" and has been changed to ACLW throughout the entire modified source.) The Time command remains unchanged, and accepts only hours and minutes as input.

I am interested in comments about distributing minor RTS/8 enhancements in this form. Are the changes clear? Useful? If anyone has similar enhancements, please send them along, and I'll put them in the Newsletter.

In the last newsletter, I requested that anyone with experience in adding a TDB/E DECTape handler into RTS/8, drop me a note as to the method used, success, problems, sources, etc. User help is needed to make a Digital supported TDBE handler happen for RTS/8.

In one of the earlier meetings of the RTS/8 Working Group, we bounced around the idea of adding a hook in MCR to pass unknown command requests to a user defined task, USERCD for lack of a better name. The linkage for this task would be similar to the EXIT task, which is called when the EXIT command is entered, if the EXIT task exists in the system. When USERCD is defined in a system, and MCR does not recognize a user command, MCR would pass its input message buffer to USERCD for decoding. This would allow users to add their own commands to the RTS/8 system without modifying MCR.

I think this type of task would be very useful in implementing a system that will be used by people unfamiliar with RTS/8. After pondering this concept, it would seem that USERCD needs a table where each entry contains a command name, the associated task to execute that command, and the action to take when the command is entered. The action taken could be: to take a task out of RUN WAIT or EVENT WAIT, or to send to the task the remainder of the input message. The message could then contain limits, initial values, etc., whatever is appropriate.

How the command table in USERCD should be built needs more discussion. Should it be created at assembly or load time, or should it be built via messages from other tasks - or both? If messages are used to create the command table, should the message format allow for dynamically deleting command entries? I would appreciate user ideas on this concept. If we can firm up this concept, I will approach Digital and request that they provide the necessary code in MCR for V3.

ORIGINAL MCR CODE - V2 OR V2B

| | | | | | | |
|-----|-------|------|--------|-------|-------|------------------------|
| | 07016 | 3773 | PRNTM, | DCA I | (P1 | |
| (D) | 07017 | 3254 | | DCA | HRS | |
| (D) | 07020 | 3255 | | DCA | MINS | /CONVERT TOD TO HOURS: |
| (D) | | | | | | / MINUTES |
| | 07021 | 3112 | | DCA | ACH | |
| | 07022 | 3111 | | DCA | ACL | |
| | 07023 | 6201 | | CDF | 0 | |
| | 07024 | 1375 | | TAD | (TODL | |

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| | | | | | | |
|-----|-------|------|---------|-------|---------|--|
| | 07025 | 4256 | | JMS | DBLADD | /GET TIME OF DAY FROM / PAGE 0 FIELD 0 |
| | 07026 | 1372 | | TAD | (FUDGEL | |
| | 07027 | 4274 | | JMS | DBLSUB | /TAKE OFF THE MIDNIGHT / FUDGE |
| (1) | 07030 | 1371 | HRLOP, | TAD | (HRCON | /SUBTRACT HRS TIL / OVERFLO |
| (1) | | | | | | |
| (1) | 07031 | 4274 | | JMS | DBLSUB | |
| (1) | 07032 | 2254 | | ISZ | HRS | |
| (1) | 07033 | 7430 | | SZL | | /LINK IS 0 ON OVERFLOW |
| (1) | 07034 | 5230 | | JMP | HRLOP | |
| (1) | 07035 | 1370 | MINLOP, | TAD | (MINCON | |
| (1) | 07036 | 4256 | | JMS | DBLADD | |
| (1) | 07037 | 2255 | | ISZ | MINS | |
| (1) | 07040 | 7420 | | SNL | | /THIS TIME LINK GOES / NON-ZERO ON OVERFLOW |
| (1) | | | | | | |
| (1) | 07041 | 5235 | | JMP | MINLOP | |
| (1) | 07042 | 7240 | | STA | | |
| (1) | 07043 | 1254 | | TAD | HRS | |
| (1) | 07044 | 4767 | | JMS I | (PR4BIT | |
| (1) | 07045 | 2773 | | ISZ I | (P1 | /MINS SPLIT BET WORDS |
| (1) | 07046 | 1255 | | TAD | MINS | |
| (1) | 07047 | 7041 | | CIA | | |
| (1) | 07050 | 1366 | | TAD | (74 | |
| | 07051 | 4767 | | JMS I | (PR4BIT | |
| | 07052 | 4765 | | JMS I | (TTOUT | |
| | 07053 | 5505 | | JMP I | ENDSTF | |
| (D) | 07054 | 0000 | HRS, | 0 | | |
| (D) | 07055 | 0000 | MINS, | 0 | | |

(2)

| | | | | | | |
|-----|-------|------|---------|------|--|-----------------|
| | 07273 | 0000 | TENCNT, | 0 | | |
| | 07274 | 0000 | F1, | 0 | | |
| | 07275 | 5700 | SPEC, | 5700 | | /SLASH FOR DATE |
| | 07276 | 0057 | | 57 | | |
| | 07277 | 7200 | | 7200 | | /: FOR TIME |
| (3) | 07300 | 0040 | | 40 | | |

MODIFIED MCR CODE - V2B

| | | | | | | |
|-----|-------|------|--------|-------|---------|---|
| | 07016 | 3773 | PRNTM, | DCA I | (P1 | |
| | 07017 | 3112 | | DCA | ACH | /[N1] CONVERT TOD TO / HH:MM:SS |
| | 07020 | 3111 | | DCA | ACLW | /[N1] |
| | 07021 | 6201 | | CDF | 0 | |
| | 07022 | 1375 | | TAD | (TODL | |
| | 07023 | 4261 | | JMS | DBLADD | /GET TIME OF DAY FROM / PAGE 0 FIELD 0 |
| | 07024 | 1372 | | TAD | (FUDGEL | |
| | 07025 | 4277 | | JMS | DBLSUB | /TAKE OFF THE MIDNIGHT / FUDGE |
| (1) | 07026 | 1371 | | TAD | (HRCON | /[N1] SET UP POINTER TO / DIVISOR LIST |
| (1) | | | | | | |

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(1) 07027 3114      DCA      V      /CN1]
(1) 07030 4242      JMS      TIMEC  /CN1] COMPUTE THE HOURS
(1) 07031 4770      JMS I    (PR4BIT
(1) 07032 4242      JMS      TIMEC  /CN1] COMPUTE THE
(1)                               / MINUTES
(1) 07033 2773      ISZ I    (P1    /MINUTES SPLIT BETWEEN
(1)                               / WORDS
(1) 07034 4770      JMS I    (PR4BIT
(1) 07035 3773      DCA I    (P1    /CN1]
(1) 07036 4242      JMS      TIMEC  /CN1] AND COMPUTE THE
(1)                               / SECONDS
      07037 4770      JMS I    (PR4BIT
      07040 4767      JMS I    (TTOUT
      07041 5505      JMP I    ENDSTF

(2) 07042 0000      TIMEC,  0      /CN1]
(2) 07043 3115      DCA      P      /CN1] CLEAR THE COUNTER
(2) 07044 1114      TIMLOP, TAD    V      /CN1] DIVIDE BY SUB-
(2)                               / TRACTING 'TIL OVERFLOW
(2) 07045 4277      JMS      DBLSUB /CN1]
(2) 07046 2115      ISZ      P      /CN1]
(2) 07047 7430      SZL                               /CN1] LINK IS 0 ON
(2)                               / OVERFLOW
(2) 07050 5244      JMP      TIMLOP /CN1]
(2) 07051 1114      TAD      V      /CN1] REFORM THE
(2)                               / REMAINDER
(2) 07052 4261      JMS      DBLADD /CN1]
(2) 07053 2114      ISZ      V      /CN1] BUMP THE DIVISOR
(2)                               / POINTER
(2) 07054 2114      ISZ      V      /CN1]
(2) 07055 2114      ISZ      V      /CN1]
(2) 07056 7240      STA                               /CN1]
(2) 07057 1115      TAD      P      /CN1] RETURN WITH THE
(2)                               / RESULT-1 IN THE AC
(2) 07060 5642      JMP I    TIMEC  /CN1]

      07273 0000      TENCNT, 0
      07274 0000      P1,      0
      07275 5700      SPEC,   5700  /SLASH FOR DATE
      07276 0057                               57
      07277 7200                               7200  /: FOR TIME - MINUTES
(3) 07300 0072      72      /CN1] : FOR TIME - SECONDS

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VIRTUAL/SHARED OS8

Bob Phelps has forwarded to DECUS via me a new set of tapes for his DEC10 and MTFOTP submissions with a couple of minor problems repaired. They were things like a missing control-Z at the end of one of the files. He also sent word on his latest work as follows:

"We now have VIRTUAL/SHARED OS/8 working. Although I am not ready to make it generally available, I would enjoy sharing it with selected individuals and talking with people about it, including announcing it in the Newsletter. We have three PDP-8's each with 32K and dual RK05 disks. They are all used for behavioral research (i.e. testing animals) using a state-dependent language (SKED) under RTS-8. I have modified the OS/8 task supplied by DEC as part of RTS-8 so that two terminals can run two different copies of OS/8, each with an apparent 32K of core simultaneously in 12K of physical core. Each user is in no way limited as to what resources he can use except that both users cannot open output files on the same device. This is conveniently controlled using the READ ONLY option in SET.

This system has discovered several interesting bugs in OS/8 cusps including the following:

- (1) SET will not set resident devices to READ ONLY.
- (2) RESOURCE prints out the contents of disk files and not the in core tables for read-write-file and entry point information.
- (3) PAL uses a horrible algorithm for searching its symbol table which causes an impossible amount of swapping if the software core size is greater than the hardware core size. LOAD behaves similarly. (Note: the symbol table organization in PAL8 is the result of a number of iterations over the years intended to make it as fast as possible and use as much memory as is available. It is highly optimized to the normal stand alone OS/8 environment and would have to be redesigned again to work well in a virtual memory environment. One of the older versions from before the current hash table design might work better in this case. I wonder how well MACREL works in this situation and what does ETOS do about the problem? I think that in a virtual memory system LOAD will work best if the software core size equals the actual real memory available. LOAD tries to use all the available memory to minimize the amount of swapping it has to do. If the memory it is using is virtual, as Bob indicates, you end up doing much more swapping than if you had just let LOAD manage the available real memory itself. RH)

There are others. Anyway, I hope to make this program available when we have better defined its capabilities and problems."

Bob's address is The University of Rochester Medical Center, Department of Radiation and Biology and Biophysics, 601 Elmwood Drive, Rochester, New York 14642.

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BIG FLOPPY DISK DEVICE HANDLERS

Dr. Eugene J. M. Lynch sent the following information:

"As I promised (threatened?) in my last letter, I have enclosed copies of three DECUS submissions of OS/8 Floppy Disk handlers. These handlers record data on the Floppy in a format different from that used by DEC's handlers, which increases the block size of a disk from 494 to 666, a 40% increase for a system disk, and 35% for a data disk. All three are two page handlers, and thus the system handler requires either 12K memory, or a ROM. A system handler for each case is included, as is a non-system handler. They are separate submissions, since only one of them would be used on a particular machine. ..."

The documentation is very professional, an excellent example of what it would be nice to have for all programs, particularly DECUS submissions. The package is presented in terms of OS/8 and the RX01 as opposed to the DECstation 78 and OS/78 (i.e. you must have BUILD to insert the handlers in the system for example) and it is not clear if the slower speed of the 78 will cause problems the way it did for DEC when they first tried to run the RX01 handlers with it (the problem was something like getting a full revolution of the disk for each block transferred due to the CPU not being done with the last block when the next one came by in spite of the 2 to 1 interleaving). DEC had to fix the problem by recoding the handler for greater speed in certain places as I understand it.

Dr. Lynch is with Xerox Corporation at Xerox Square W129, Rochester, NY 14644 716-422-3429.

NOTE FROM ALBRECHT LOMMEL

I recently received the following note:

"As a PDP-8 oldtimer I again want to thank you for the very instructive 12 bit SIG news rendering a big help in all programming efforts! As for your question regarding distribution on microfiche to save costs: I'm for this solution because I have a private MF reader and one official in my bureau, too. For me MF should not offer any problem. The same would be interesting with the DECUS program listings. My next submission to DECUS will be made this way, as it was developed on a CDC 6500 cross assembler PAL8 from where it is possible to send the output directly on a microfiche developing terminal. It will be a multichannel, very general data acquisition program, storing data on OS/8 sys or mastape for transfer to a big computer. See description in DECUS Proceedings for European Symposium, Sept 1976 Munich/FRG p.183ff."

His address is Institut fur Aerodynamik, ETH - ZURICH, CH-8092, Switzerland.

FOCAL-12 HELP REQUEST

Chuck Conley recently forwarded a request for help. It is from Robert C. Shumaker, Ph. D., Pharmaceutical Research Division, Warner-Lambert/Parke Davis, P O Box 1047, Ann Arbor, Michigan 48106

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(313) 994-3500. Dr Shumaker writes:

"I am having difficulty storing data files using FOCAL-12. I am saving a series of data arrays on LINCtape in separate data files (e.g. ELVIN1, ELVIN2, etc.). A subsequent search of the data files shows that the final data array entered (e.g. ELVIN6) not only appears in ELVIN6 but also has apparently replaced each data array in all the previously entered data files of the same block length (ELVIN1, ELVIN2, etc.). More specifically, in the program I store the data temporarily in a working file referenced as F7. Later I use the L M command to make a new file, use L O to open it, referencing it as F5, then load the data from F7 to F5 using the SET command. Finally, I close both files using L C. In the next pass through the program I again open the files, transfer the data into the working file and, after manipulating the data (including printing out the contents of the working file), I re-close the files."

"I am using a copy of FOCAL-12 from DEC-12-SE2E-UO, LAP-6-DIAL System tape user programs dated 1971. I would like to know the following: (1) is there a patch to circumvent the problem, (2) is there an updated version of FOCAL-12 available that handles data arrays differently, (3) is there an expanded, and/or more recent programming manual for FOCAL-12 than DEC-12-AJAA-D (1970)?"

Because FOCAL-12 is an unsupported DEC product, Dr. Shumaker's request was forwarded by DEC to DECUS. Chuck sent Dr. Shumaker a copy of the DECUS catalog and forwarded a copy of the request to me to see if any of the 12 BIT SIG membership could help. I do not happen to know of any known bug of this type, therefore I cannot solve the problem without more detailed information. Typically, I find this class of problem results from a program that is not really doing what the programmer thinks it is doing. Often this is due to a programming error or a misunderstanding of how some feature of the language or operating system works.

As to better documentation and better language features I would have to advise that LAP6-DIAL and FOCAL-12 are dead issues as far as DEC is concerned. It seems to me that if a FDP-12 user wants support for his software, new and extended features, and continuing software development, he has little choice but to change over to OS/8 and perhaps replace FOCAL-12 with one of DEC's supported languages (FORTRAN-IV or BASIC) or go to one of the excellent user written and supported versions of FOCAL that run under OS/8.

If you have any ideas or help to offer, please contact Dr. Shumaker.

EQUIPMENT FOR SALE

I have recieved several notices of equipment for sale. DECUS policies make it hard to publish such notices in the Newsletter. In the case of commercial dealers, DECUS definitely does not like to have the newsletters used as marketing tools. In the case of individuals, however, it may be acceptable to provide a pointer to the offerings. You can contact the following people for information on the equipment

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they are offering.

A large PDP-12 system and a several separate peripherals are being offered by Jerry Pylyshyn at The University of Western Ontario, Department of Physiology, Health Sciences Centre, London, Canada, N6A 5C1 (519) 679-6139. They also have software for the transfer of ASCII and binary data OS/8 files between the 12 and a PDP-11 under RSX-11M.

An 8K paper tape 8F system and an I14/35 controller are being offered by Gary Boehm of B&C Engineering, 6413 Carradale Ct., Caledonia, Ill. 61011 (815) 885-3972.

George Gonzalez
Hearing Research Lab
2630 University Avenue
Minneapolis, Minn. 55414
(612) 376-3106

Robert Hassinger
Liberty Mutual Research Center
71 Frankland Road
Hopkinton, MA 01748

Dear Bob,

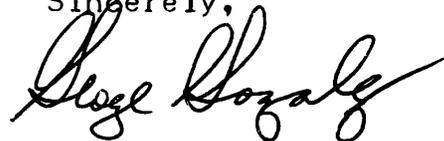
This short note is to announce the preliminary release of FORTX, a greatly extended version of the OS/8 FORTRAN II system developed here at HRL. FORTX provides many of the features of FORTRAN IV while avoiding the cost and complexity of OS/8 FORTRAN IV. It also makes it possible to write better structured programs. Major features include:

Added operators: .AND. .OR. .NOT. .LT. .GT. ..etc...
Type declaration statements: INTEGER, REAL, LOGICAL
DATA statements.
Logical IF statement.
Block IF...THEN...ELSE Statement.
Block DO statement.
Block WHILE statement.
Meaningful error messages and traceback.
Improved code generation.
... plus much more

The compiler still accepts 'standard' FORTRAN II and will run in 8K. Extra features are automatically activated if 12 or 16K is available.

FORTX is available for free to all interested OS/8 users. Send a SASE + a blank RX01 floppy to my address above. I'll return the diskette with a runnable copy of the compiler, a new LIB8, and a 12 page writeup file. All I ask is that the users report to me any bugs they find in FORTX or in its compatibility with FORTRAN II.

Sincerely,



George Gonzalez

DEAR BOB,

I PREVIOUSLY SENT YOU A SHORT NOTE CONTAINING PATCHES TO THE LPSV AND LQP LINEPRINTER HANDLERS TO ELIMINATE THE FORMFEED EVERYTIME YOU CALL THEM. I HAVE BEEN EXAMINING A DISASSEMBLY OF THE LQP HANDLER AND WOULD LIKE TO OFFER SOME ADDITIONAL PATCHES WHICH PERHAPS MIGHT BE INCLUDED IN THE SAME, OR A FUTURE ISSUE OF YOUR SUPER NEWSLETTER.

MORE ON THE LQP HANDLER:

AS DELIVERED FROM MAYNARD, THE LQP HANDLER IS SET TO PRINT 12 CHAR/IN, I.E. 'ELITE' SPACING. SINCE MANY USERS MAY WISH TO USE THIS HANDLER TO GET HIGH-QUALITY OUTPUT IN A FORMAT SIMILAR TO THAT PRODUCED BY OTHER HARD-COPY DEVICES, IT WOULD BE DESIRABLE IF THE HANDLER COULD BE MODIFIED TO PRINT 10 CHAR/IN. ANOTHER FEATURE WHICH SEEMS TO ME TO BE HIGHLY DESIRABLE, BUT WHICH IS MISSING IN THE STANDARD VERSION, IS THE ABILITY TO RECOGNIZE A BACKSPACE. THIS PREVENTS ONE FROM UNDERLINING AND OTHER MULTI-STRIKE OPERATIONS SUCH AS BOLD-FACE PRINTING.

THE PITCH SETTING IS EASILY CHANGED (AND REALLY SHOULD HAVE BEEN INCLUDED IN THE DOCUMENTATION): RELATIVE LOCATION 200 CONTAINS THE CHARACTER WIDTH WHILE LOCATION 201 CONTAINS THE LINE SPACING AND 202 THE (NEGATIVE OF) THE NUMBER OF LINES/PAGE. USERS MAY WELL WANT TO CHANGE ANY OR ALL OF THESE TO HANDLE DOUBLE SPACING, SHORT FORMS, ETC. THE METHOD FOR PATCHING THESE LOCATIONS IS QUITE SIMPLE: USE EITHER THE ALTER COMMAND IN BUILD, OR THE NEW SET COMMAND. CHANGES MADE WITH SET WILL DISAPPEAR WHEN YOU RE-BUILD THE SYSTEM, HOWEVER. ONE MIGHT EVEN HOPE FOR A SET LPT PITCH 10/12 COMMAND IN A FUTURE RELEASE!

TO SET 10-PITCH: SET LPT LOC 200=30 OR AL LQP,200\$0024/30\$
TO SET 12-PITCH: SET LPT LOC 200=24 AL LQP,200=24\$

TO SET DOUBLE SPACING SET LPT LOC 201=40 OR AL LQP,201\$0020/40\$

NOTE: CHANGING THE VALUE TO 30 OBVIOUSLY CREATES 1½ SPACING.

TO HANDLE SHORT FORMS SET LPT LOC 202(~~ca~~) OR AL LQP,202\$7676/xxxx\$
7676/xxxx(~~ca~~) NOTE: 7676= -1028 =-6610

TO IMPLEMENT THE BACKSPACE FEATURE ADD THE FOLLOWING CODE: (BUILD FORMAT)

AL LQP,324\$7640/7440 NOTE: THIS LOC WAS ALREADY PATCHED TO FIX TAB BUG
AL LQP,325\$5336/5362
AL LQP,362\$xxxx/7001 NOTE: YOU CAN USE THE SET LQP LOC NNN=MMM COMMAND
AL LQP,363\$xxxx/7650 IN PLACE OF THE BUILD ALTER COMMANDS IF YOU WISH.
AL LQP,364\$xxxx/7040
AL LQP,365\$xxxx/1355 THIS PATCH USES UP THE LAST AVAILABLE SPACE ON THE
AL LQP,366\$xxxx/3355 SECOND PAGE OF THE HANDLER. THE HANDLER REALLY
AL LQP,367\$xxxx/5336 NEEDS TO BE REWRITTEN - PERHAPS FOR V4??

DON'T FORGET TO SAVE THE MODIFIED COPY OF BUILD AFTER MAKING THESE CHANGES ALSO, DON'T FORGET TO CALL BUILD WITH THE .RU DEV:BUILD COMMAND RATHER THAN JUST .R BUILD SO THAT THE APPROPRIATE CCB PARAMETERS ARE SAVED!

SINCERELY,

JIM VAN ZEE
DEPT. OF CHEMISTRY
UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON 98195



SENSORY COMMUNICATION
RESEARCH LABORATORY
HEARING AND SPEECH CENTER

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GALLAUDET COLLEGE

KENDALL GREEN, WASHINGTON, D.C. 20002

June 21, 1978

Mr. Bob Hassinger, Coordinator
12 Bit Sig
DECUS

Dear Bob,

In my letter published in #27, page 29, I mentioned a problem with the date in FORLIB. It turned out to be an old copy of the Library that did NOT get updated. That is a problem when there are many disks with systems on them.

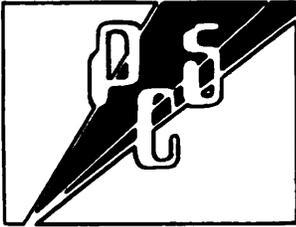
I also mentioned a way to read the batch stream with Fortran IV. I have since discovered a minor bug with the batch handler or maybe batch itself. In any case, I submitted an SPR (the first/?/ for the BAT handler). The problem is as follows: make a small program that reads a group of numbers from the batch stream. Everything is great as long as that is the last thing in the file. If however, after the Fortran program, you want to do something else, i.e., move and rename the new data file you just created. Look out! Something eats the batch stream and this causes batch to abort the job. I had tried to generate some data files with Fortran IV, then move them with FOTP and rename them. But I kept getting errors, and the job aborted. I hope there is a fix for this either now or with the next release of OS8.

The letter from Dan Smith (#28-39) and his troubles with his HP terminal were interesting. Here is how we solved the problem. We wanted to have both a CRT and a DEC-writer connected to our PDP-12; so with a little work (hardware) Dave Talkin here at our Lab fixed up a switch that, 1) changes the clock for the terminal (Decwriter = 300 Baud, CRT = 1200 baud), and 2) changes the input from current loop from the Decwriter to an RS232 input for the CRT (Datapoint 3000). Now if they want to use the PDP-12 to do A-D sampling, etc., they switch to the console TTY. However for editing and executing Fortran programs, these can be run from their office in an adjacent room. This saves all the mess of trying to change the OS8 monitor to accomodate the new terminal.

Has anybody bought and tried DECNET on a PDP-8 system?

Sincerely,

Fred D. Brandt



PROCESS CONTROL SYSTEMS, INC.

18130 S. Thornapple Lane

New Berlin, Wisconsin 53151

(414) 782-3945

HARDWARE CONSULTATION

May 4, 1978

~~SOFTWARE DESIGN~~

PROCESS CONTROL SYSTEM DESIGN

Mr. Robert Hassinger
 12 Bit SIG
 c/o DECUS
 129 Parker Street, PK-3/E55
 Maynard, MA 01754

Dear Bob:

Recently one of my customers purchased a floppy disk drive for a PDP-8 from Data Systems Design, Inc., Santa Clara, CA. It was advertised as completely software compatible with the RX8E, available immediately, and cost \$1005 less than the RX8E. I got the unit to set up, test, and evaluate.

The hardware is excellent and set up quickly without any difficulty. I tested it for software compatibility with OS/8 V3C and V3D handlers for OS/8, RTS-8 V2B floppy task, and WPS-8 and it worked.

But, the main purpose of the letter is to point out an interesting bit of software that came with the drive; an 8 bit mode 2 page non-system device handler.

The DEC RX8E handlers use a 12 bit mode. Only 64 12-bit words are put into a 128 byte (8 bit) sector, wasting $\frac{1}{3}$ the capacity of the disk. This high density handler puts one 12 bit work in $1\frac{1}{2}$ bytes, wasting no bits. The increase in storage is dramatic; from 494 blocks to 658 blocks. Note that the same sector format (77 tracks, track 0 not used, 25 sectors/track, 128 bytes/sector) is used for both the 12 bit and 8 bit modes, only the way the data is stuffed into a sector is different.

I have used this handler with a DEC RX8E attached to a PDP-8/E and with an RX8-E on a VT78 with no difficulty.

Mr. George Fink of Data Systems Design, Inc. authorized me to inform the 12 Bit SIG of the existence of this software and give it to anyone who wanted it, provided that the source was properly credited. I hope that the software will find its way into the DECUS Library, but until then I can copy it onto Dectape or floppy for anyone who wants it. Those writing for the software should include media plus \$2.00 to cover return postage and handling.

Yours truly,

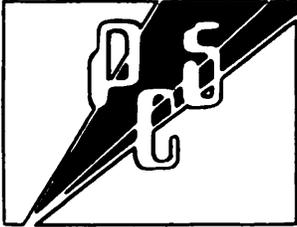
Michael E. Mazzoni
 Michael E. Mazzoni
 President

MEM:blm

MINICOMPUTERS

MICROCOMPUTERS

PROGRAMMABLE CONTROLLERS



PROCESS CONTROL SYSTEMS, INC.

18130 S. Thornapple Lane

New Berlin, Wisconsin 53151

(414) 782-3945

HARDWARE CONSULTATION

June 27, 1978

SOFTWARE DESIGN

PROCESS CONTROL SYSTEM DESIGN

Mr. Robert Hassinger, Coordinator
 12 Bit SIG
 c/o DECUS
 129 Parker Street, PK-3/E55
 Maynard, MA 01754

Dear Bob:

I recently acquired an OS/78 system with the OS/78 software. When I first ran the software, there seemed to be something truly bizarre about the utilities: they could only be accessed with CCL commands. Using the 'R' or 'RUN' command, e.g.:

```
.R DIRECT          /or
.RUN SYS DIRECT   /resulted in
CORE IMAGE ERR
```

Which means '...CANNOT RUN SYSTEM PROGRAM'. At first I suspected a bad disk from the DEC software distribution center, but the fact that the programs could be chained to from CCL seemed to indicate something more subtle.

I used EPIC to compare the various utilities from OS8 V3D to their corresponding OS/78 utilities and found that for any utility, the only difference was that word 3 of the core control block had bit #5 clear for OS/8 but set for OS/78. This is the job status word.

The OS/8 handbook says this bit in the job status word is "...unsued, and reserved for future expansion". The OS/78 User's Manual says that this bit is "...reserved for OS/78 system programs".

Apparently, the use of this bit in OS/78 is to prevent the 'R' command from working with the standard utilities! I wonder why?

Yours truly,

Michael E. Mazzoni
 Michael E. Mazzoni
 President

MEM:blm

May 11, 1978

Robert Hassinger
Coordinator - 12 bit SIG
Liberty Mutual Research Ctr.
71 Frankland Road
Hopkinton, MA 01748

Dear Bob:

I have a two-page, non-system floppy disc handler that drives the RX01 floppy discs in 8-bit mode. This handler still maintains a two-way sector interleave (even on a 1.5 usec PDP8/a) so disc transfers are actually a little faster. Running in 8-bit mode and utilizing track 0 increases the available storage from 495 to 650 OS/8 blocks. The driver handles two floppy disc units. This driver will not run on the DECstation/78 because the processor is too slow. However, I did manage to get a driver with a four-way sector interleave to work on a DECstation.

I will be happy to copy over the binary and source of the PDP8/e, a version of the handler for anyone who mails me a floppy disc plus \$1 for return postage.

Putting together a system handler that works in 8-bit mode seems impractical unless the last pages in both fields 2 and 3 are used. However, if anyone has succeeded in doing this, I would be interested in hearing about it.

I have also enclosed a manual and data sheet on ACID which is a document generator program that runs under OS/8. One nice thing about ACID is that it is very simple to use. It can also produce material in double columns like this letter which works out rather well even on narrow columns since ACID has automatic hyphenation.

Yours Sincerely,



C. E. Stewart Dewar

MONTREAL NEUROLOGICAL HOSPITAL

AND

MONTREAL NEUROLOGICAL INSTITUTE

MCGILL UNIVERSITY

3801 UNIVERSITY STREET - MONTREAL, CANADA H3A 2B4

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 Director of Personnel
 WINSTON ROCHETTE
 Administrative Assistant

June 29, 1978

Mr. Robert Hassinger
 Liberty Mutual Research Center
 71 Frankland Road
 Hopkinton, MA 01748

Dear Mr. Hassinger,

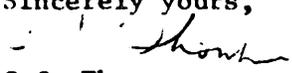
EEG Signal averaging with PDP-12 or PDP-8

I am writing in response to the article on page 34 of the 12 BIT SIG Newsletter #28 in which your contributor uses the FPP-12 to do signal averaging. I would like to suggest a much faster way that does not require an FPP-12. We have been digitizing EEGs for many years and using only 8 bits precision so that each value fits on one byte of 9 track IBM tape on our PDP-12. Ten bit values from the AD converter have 1024 added to them and then are right shifted twice to make them positive. Since all values are positive signal averaging using double precision accumulation is very easy since no sign checking is required. I wrote Fortran II compatible routines in SABR several years ago to average and cross correlate this data. The double precision array into which data is accumulated is arranged so that the most significant word is after the least. If register 12 points to the input array and 13, 14 to the output the sequence:

```
TAD I 12 / number from input array
TAD I 13 / add to low word
ISZ 13 / bypass high word
DCA I 14 / save low word
SZL
ISZ I 14 / increment high word on overflow
SNL CLL
ISZ 14 / bypass high word no overflow
```

does the double precision addition.

A similar trick is used for cross correlation allowing 2 1000 point sections to be correlated over 100 points in a couple of seconds on a PDP-12.

Sincerely yours,

 C.J. Thompson
 Computing Systems Engineer

June 20, 1978

Mr. Robert Hassinger
 Coordinator, 12 Bit SIG
 Liberty Mutual Research Center
 71 Frankland Road
 Hopkinton, MA 01748

Dear Mr. Hassinger:

As a long-time fan of your newsletter, I have noticed a growing interest in the IM6100/HM6100 CMOS 12 bit microprocessor family among the DECUS 12 bit community. Intersil is continuing to expand its CMOS microprocessor and CMOS memory families. For those interested, here is a summary of currently available CMOS logic and memory components:

| | |
|-----------|--|
| IM6100 | 12-bit microprocessor |
| IM6101 | peripheral interface element (PIE) |
| IM6102 | memory extension, DMA, real time clock (MEDIC) |
| IM6103 | parallel interface port (PIP) |
| 6402/6403 | universal asynchronous receiver/transmitter (UART) |
| 6603 | 1K x 4 UV erasable EROM |
| 6504 | 4K x 1 RAM |
| 6508 | 1K x 1 RAM |
| 6312 | 1K x 12 mask programmable ROM |
| 6551 | 256 x 4 RAM |
| 6512 | 64 x 12 RAM |

As Jonathan Lockwood has mentioned in previous newsletters, some of the above components are second-sourced by Harris Semiconductor.

Intersil is also looking for computer programmers with at least two years of PDP-8 assembly language experience in an OS/8 environment. Interested parties should contact me by phone at (408) 996-5320, or mail.

\$130 employment

Thank you for providing a valuable service to those of us who would otherwise have to rely solely upon DEC for software support.

Sincerely,

Dave Kocsis

Dave Kocsis

jw



SOFTWARE
PERFORMANCE
REPORT

FIELD #:

#29 - PAGE 18

59501

FOR DEC USE ONLY

Page 1 of 1

| | | | | | | | | | | | | | | | | |
|---|---|---|--------------------|---------------------------------|-------------|----------|--|---|--|-----------------------------------|-------------------------------------|-------------------------------|----------------------------------|--|---|--|
| SYSTEM PROGRAM AND VERSION (OR DOCUMENT) PAL 8-V10A | | MONITOR AND VERSION 05/8 V3D | | DATE 20-Apr-78 | | | | | | | | | | | | |
| NAME: Gary B. Stebbins FIRM: American Sign & Indicator | | DEC OFFICE Bellevue, WA | | | | | | | | | | | | | | |
| ADDRESS: N. 2310 Fancher Spokane, WA ZIP 99206 | | <table border="0"> <tr> <td>REPORT TYPE</td> <td>PRIORITY</td> </tr> <tr> <td><input checked="" type="checkbox"/> LOGIC/CODING ERROR</td> <td><input checked="" type="checkbox"/> LOW</td> </tr> <tr> <td><input type="checkbox"/> DOCUMENTATION ERROR</td> <td><input type="checkbox"/> STANDARD</td> </tr> <tr> <td><input type="checkbox"/> SUGGESTION</td> <td><input type="checkbox"/> HIGH</td> </tr> <tr> <td><input type="checkbox"/> INQUIRY</td> <td></td> </tr> <tr> <td><input type="checkbox"/> FOR YOUR INFORMATION</td> <td></td> </tr> </table> | | | REPORT TYPE | PRIORITY | <input checked="" type="checkbox"/> LOGIC/CODING ERROR | <input checked="" type="checkbox"/> LOW | <input type="checkbox"/> DOCUMENTATION ERROR | <input type="checkbox"/> STANDARD | <input type="checkbox"/> SUGGESTION | <input type="checkbox"/> HIGH | <input type="checkbox"/> INQUIRY | | <input type="checkbox"/> FOR YOUR INFORMATION | |
| REPORT TYPE | PRIORITY | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> LOGIC/CODING ERROR | <input checked="" type="checkbox"/> LOW | | | | | | | | | | | | | | | |
| <input type="checkbox"/> DOCUMENTATION ERROR | <input type="checkbox"/> STANDARD | | | | | | | | | | | | | | | |
| <input type="checkbox"/> SUGGESTION | <input type="checkbox"/> HIGH | | | | | | | | | | | | | | | |
| <input type="checkbox"/> INQUIRY | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> FOR YOUR INFORMATION | | | | | | | | | | | | | | | | |
| SUBMITTED BY: Gary B. Stebbins | | PHONE: (509) 535-4101 | | | | | | | | | | | | | | |
| LIST ATTACHMENTS Example Input & Output | | CAN THE PROBLEM BE REPRODUCED AT WILL? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO | | | | | | | | | | | | | | |
| CPU TYPE PDP-8/E | SERIAL NO. 1716 | SYSTEM DEVICE DEC tape | MEMORY SIZE 16K | DISTRIBUTION MEDIUM DEC tape | | | | | | | | | | | | |

PAL 8 appears to not count lower case characters when keeping current output line position, and therefore messes up tabs.

***** "TEST.PA" SOURCE FILE:

/PAL8 Tabulation Test

/CORRECT TAB STOPS:

```

/      1      2      3      4
/UPPER 1 CASE 2      3      4
/Upper 1 and 2 lower 3 case 4
/ALL UPPER CASE BUT 1 3      4
/TRY Two      2      3
/Get the picture??      3      4
$

```

***** "TEST.LS" PAL8 OUTPUT FILE:

/PAL8 Tabulation Test

PAL8-V10A 19-APR-78 PAGE 1

/PAL8 Tabulation Test

/CORRECT TAB STOPS:

```

/      1      2      3      4
/UPPER 1 CASE 2      3      4
/Upper      1 and      2 lower      3 case      4
/ALL UPPER CASE BUT 1 3      4
/TRY Two 2      3
/Get the picture?? 3      4
$

```

SOFTWARE COMMUNICATIONS USE ONLY

| | | | |
|---|---------------|----------------------|------------|
| DO NOT PUBLISH <input type="checkbox"/> | DATE RECEIVED | BACK FROM MAINTAINER | LOGGED ON |
| | TO MAINTAINER | DATE CLOSED | LOGGED OFF |

Sunnybrook Medical Centre

University of Toronto

2075 Bayview Avenue
Toronto, Ontario, Canada
M4N 3M5

May 30, 1978.

Mr. Robert Hassinger,
Co-ordinator, 12 Bit SIG,
c/o DECUS,
129 Parker Street, PK-3/E55,
Maynard, MA 01754,
U.S.A.

Dear Mr. Hassinger:

We are running a PDP8/L with 8K, a single RK05 disc, and a dual Sykes Compucorder cassette drive. We have the opportunity to purchase a used Kennedy 1600 tape drive and a Pico 1058 controller, but there is no documentation available for the controller.

I would be most grateful if you could publish a request in the newsletter for information on connecting such equipment to a PDP 8/L, and running it under OS/8.

Many thanks, and my compliments on the fine newsletter,

Yours sincerely,



William Gentles, PhD.,
Head, Department of Biomedical Engineering.

WG/vcd

209 Ardsley Drive
DeWitt, New York 13214
78/06/05

Mr. Robert Hassinger
Liberty Mutual Research Center
71 Frankland Road
Hopkinton, MA 01748

Dear Bob:

A friend and I are restoring a pair of Straight-8's for personal use. Accordingly, we would like to hear from anyone who has any surplus negative-logic equipment (R-, W-, and G-Series modules; cables; logic racks; old-style cabinets; etc.) available for sale. We would be especially interested in purchasing an 8, 8/S, or LINC-8 (working, or not) for spare parts.

I have the following software which may be of general interest:

UCNVRT--A program to exchange ASCII files between operating systems. Currently supports OS/8 (DECTape/LINCtape), P?S/8 (D/L), Disk Monitor (D/L), DIAL (L), and PDP-15 (D). Requires a 4K PDP-8 with TC01/TC08 DECTape, or a 4K PDP-12 with TC12 LINCtape (TC12F DECTape optional). TD8E support is in progress.

DCTPNS--OS/8 non-system handler for TC12F DECTape. Has no transfer restrictions, and requires no hardware mods. Instead, all the busting is done by a piece of helper code up in the highest field of memory. Requires a 12K PDP-12 with TC12F.

PDP8--A PDP-8 simulator which allows OS/8 to run on a PDP-15. Supports absolutely unmodified OS/8 TC08 system tapes. Seeing this thing run made my local Software Support Specialist turn green and pass out. Performance is acceptable: 15X slower for CPU bound work, zero degradation for DECTape transfers. Requires

- 2 -

a 12K PDP-15 with EAE and TC02/TC15 DECTape.

These programs will not be submitted to the library; anyone who is interested in obtaining them should contact me directly at the above address.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Mark J. Hyde". The signature is written in a cursive, flowing style with some loops and flourishes.

Mark J. Hyde

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