

# 12-BIT ARTICLES . . . .

DECUS 12 BIT NEWS

-----

NUMBER 47

SEPT 1984

-----

Contributions and correspondence should be sent to:

Robert Hassinger, 12 Bit Coordinator	
c/o DECUS	..or.. Liberty Mutual Research Center
249 Northboro Rd (BPO2)	71 Frankland Road
Marlboro, MA 01752	Hopkinton, MA 01748

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

## NEWSLETTER SUBMISSIONS

Submissions are accepted at all times and are normally used in the next issue to go to press regardless of date of receipt.

Material submitted in machine readable form is particularly desirable because it can be edited and incorporated into the newsletter format more easily. Higher quality reproduction is also possible this way. Contact Bob Hassinger for further details on acceptable media and formats if you plan to make a submission in machine readable form.

## HELP - OS/78 AND OS/278 FOR DECMATE I

Doctor John A. Hawkinson contacted me to ask about software for his DECmate I. OS/78 would do his job but DEC told him it would cost \$1600 which is too much for his needs. He would like to be able to get a version of OS/278 for his system. Since, as noted below, DEC's and DECUS's plans are not yet set on this subject, he sent the following item for the Newsletter.

"I am interested in hearing from other owners of DECmate I to compare software options, especially the OS/78 and OS/278 family. John A. Hawkinson, P. O. Box 210, Easton, MD 21601."

12 BIT COMMITTEE

Robert Hassinger  
- address above -  
(617) 435-9061

COS/DIBOL and WPS liason  
Lawrence H. Eisenberg  
17141 Nance Street  
Encino, California 91316  
(818) 788-0354

Education, Multiuser systems, PASCAL  
Father Geoffrey Chase O.S.B.  
Portsmouth Abbey School  
Portsmouth, RI 02871  
(401) 683-2000

Representitive to DECUS Product Planning Committee  
Jim van Zee  
Lab Data Systems  
10320 Ravenna Ave NE  
Seattle, Washington 98125  
(206) 522-6950

12 Bit Software Project  
Wally Kalinowski  
The Aerospace Corporation  
PO Box 92957  
Los Angeles, CA 90009  
(213) 648-6940

OS/278 FOR DECMATE I AND EARLIER SYSTEMS

Joseph Constanza, Jr. wrote as follows: "I have followed your writing on OS/278 with much interest, especially in the June 1984 Newsletter. I have been a user of OS/78 version 4 on DECmate I for the past two years and have developed some useful programs for our firm using BASIC, all the while waiting for DEC to eventually come out with an improved version 5.

"OS278 seems to be the version I was waiting for, but I am somewhat confused about its compatibility with the DECmate I. You mentioned in NL 46 about using OS278 with 8 inch drives (page 43), but I suppose this would not work on DECmate I unless the system device handlers were modified. Am I correct in assuming that one cannot simply copy the system to an 8 inch disk and expect to boot it on a VT278 set-up using an RX02 drive? If this were possible, it sure would make a lot of us DECmate I, OS/78 users happy!

"Is there any hope that the DECUS Library will have a DECmate I version of OS278 in the near future?"

Joseph's letter raises an issue I have been working on this Spring and Summer. As he notes, it is of great interest to many users. The following is the best I have at this point but because I do not have the hardware to confirm it I can not be certain of everything yet.

The developer of OS/278 told me the code was designed and intended to run on DECmate I (aside from obvious DECmate II specific features like RX50 and Winchester disk support and so on). I understand it has been run with success on earlier systems such as the DECstation-78. Certain of the new features, particularly the new editor, require the DECmate I or II (i.e. the 6120 based CPU) so they will not work on the older systems. Since compatibility with older systems was not a design goal, DEC can not easily characterize just how compatible OS/278 is with the them. Only experience will tell, but so far it looks like it is worth trying.

Once DEC decided not to market OS/278, the priority was to get it into the Library on RX50s so DECmate II users would have access to an OS/8 family system. Since OS/78 was still available from DEC, they felt there was no critical need to do anything about earlier systems at that point, preferring to get the DECmate II version out as soon as possible instead. The push to get it out and the shortage of time were given as the reason the sources were not submitted to DECUS with the package. Note that there is a practicality issue here too. It will take a lot of RX50s to hold all the sources to OS/278.

So, if OS/278 will run on a DECmate I, how do you get a bootable system on 8 inch floppies? Joseph is correct. You can not just copy it over. First, you need a DECmate II with the 8 inch floppy option. I understand this is just a small interface board that lets you connect your existing RX01 or RX02 drive to the DECmate II. The OS/278 kit contains all the device drivers for both DECmate I and DECmate II as it turns out. It is my understanding that the procedure to use is a SET SYS command that will do the things required to build the system area and bootstrap on the 8 inch disk while you are running from the RX50s. After the basic system is built in this way I assume you just do a COPY of the system files from the RX50 to the 8 inch disk. I have no way to try this now so I can not give more details (anyone out there want to lend me a DECmate II and 8 inch floppy option for a while?). By the way, as I understand it, OS/8 BUILD is still used to create the original OS/278 system so if you are a real OS/8 system and hardware guru you might try that route too.

In connection with all this I have been working with the DECUS staff on building and submitting to the Library an 8 inch floppy version of OS/278. They have the hardware I need to do it and they have let me use it before to do several conversions that have already been submitted to the Library. When it came to making an 8 inch version of OS/278 for the Library however, they asked me to wait. It seems they checked and found DEC has a problem with this. I am not clear exactly what the problem is but basically it seems to involve the fact that OS/78 is still a product and they are trying to decided what to do about it. They have been thinking about releasing more of the OS/8 software family to DECUS for some time. I assume this is part of that. In any case I agreed not to push the issue till the end of September. At that point, we hope DEC will have reached a decision on how to handle the situation.

There are a number of other items I hope they will address too, such as the complete OS/8 package, RTS-8 and MACREL-LINK. There has even been talk of some improvements and extensions to the latest OS/278 and the DECmate II debugger package that they are thinking about putting in the DECUS Library. Release, with sources, of these would allow the user community to do the maintenance and enhancement that DEC can no longer justify. Many of these items have become difficult or impossible to get otherwise too.

PASCAL-OS/8 AVAILABLE FROM DECUS LIBRARY

Pascal-OS/8 is now available from the DECUS Program Library as DECUS 8-934. Here is the catalog abstract.

Version: V1-O-F, February 1984

Author: John T. Easton, University of Minnesota, Minneapolis, MN

Operating System: OS/8 V3

Source Language: PASCAL, PDP-8 MACREL-LINK

Memory Required: 24KW

PASCAL-OS/8 is a software system that implements the programming language PASCAL for the PDP-8 family of minicomputers running the OS/8 operating system. PASCAL-OS/8 consists of a compiler (written in PASCAL), a run-time-system with interpreter, and numerous utility programs and example programs written in PASCAL. Documentation is in printed form, about 135 pages long. PASCAL-OS/8 adheres to the ISO standard for PASCAL. It installs very simply. The implementation represents several years of work. It has been run on both PDP-8E and PDP-12. It is implemented with no PDP-8E dependencies.

Major limitations are: identifiers are distinguished on only the first eight characters; 24k memory is needed to compile; there is no library mechanism or assembly language linkage mechanism.

Features include: up to 32k memory is utilized; Post-Mortem-Display (PMD), execution error traceback is automatic; large programs may be segmented to fit available memory; several internal device handlers allow flexible interactive Input/Output; an FPP is used if present but is not required; it is compatible with two-page system handlers; it can run well under OS/8 BATCH. (note: the compiler requires a minimum 24KW of memory but the resulting compiled programs can execute in as little as 12KW - RH)

Extensions include: flexible facilities for accessing OS/8 files, including direct (random or indexed) access files; three-way packed OS/8 character files may be accessed as type TEXT, file of ASCII, or file of EightBit; Date routine; Execute(string) calls CCL; Halt(message) aborts execution; otherwise in case statement; others.

Compilation is greatly enhanced if the system has a fast disk such as an RK05, and/or if a full 32k memory is available. Performance is roughly similar to OS/8 Basic. Installation consists of copying some files to SYS:. Test sites report that PASCAL-OS/8 is complete, easy to install, and easy to use.

Media (Service Charge Code):

Manual (EC), DECTape (HB), Floppy Diskette (KB)

Format: OS/8

## PASCAL-OS/8 FOR THE DECMATE II

As you can see in the preceding abstract, the DECUS Library can not supply PASCAL-OS/8 on RX50 floppy disks for the DECmate II. As part of my DECmate II OS/8 software conversion project I have made a copy on RX50s and tried it under OS/278 on a DECmate II. It seems to work fine so, by the time this reaches you, I expect to have submitted the RX50 version to DECUS. The order number and media code should be available by the time of the next Newsletter. If you can not wait that long you could contact the DECUS Library for more information but try not to do it too soon. They have been running behind processing a large number of submissions in recent months.

## PASCAL-OS/8 REVIEW

Derek R. Smith, the Pascal Coordinator for the Languages and Tools SIG looked over the documentation for Pascal-OS/8 and sent some initial observations. Derek is involved with many versions of Pascal on a number of different computer systems. He thinks Pascal-OS/8 looks fairly good although the lack of provision for doing separate compilations would cause him a problem. His particular application consists of over 150 individual modules, or over 23000 lines of code. He can compile it as one large program on a DECsystem-20, but that would be impractical on a PDP-8. He feels this has had an effect on the design of the compiler, too. It uses predeclared routines for several system-specific functions, such as getting the date and time, where other implementors have provided EXTERNAL procedures. He says the list of non-standard predeclared routines is LONG.

Derek was pleased with the approach to random-access files, although he would have preferred declaring the file differently. The declaration implies that the size of the file is known at compile time, whereas in practice it often is not known at run time. He says the Get( F, position ) and similar Put procedures are well-chosen, though.

Derek was planning to do a full review but it was not available in time for this issue. I am looking forward to it and I hope other users will send along their observations too.

## DECUS LIBRARY PROGRAMS FOR DECMATE II

The following are abstracts of programs that are now available from the DECUS Library on RX50 floppy disks for the DECmate II. They are programs that have been popular with other OS/8 family users that have now been repackaged for OS/278.

DECUS DM-102: RUNOFF

Version: V6

Author: Thomas W. McIntyre

Operating Systems: OS/8, OS/78, OS/278

Source Language: PAL-8

Memory Required: 8K

Other Software Required: For the DECmate II, OS/278 is available as DECUS DM-101

RUNOFF is a program which runs under OS/8, OS/78, OS/278 or DECSYSTEM-8 to facilitate the preparation of typed or printed manuscripts, such as memorandums, manuals, these, etc. The user prepares his material on any terminal, and writes it onto a file using TECO, EDIT, SCROLL, or any other editor available to the user. The user includes not only textual material, but also case and formatting information. RUNOFF then takes the file and reproduces it on the line printer, teletype or other file to produce a final copy or final file image. It performs the formatting and case shifting as directed, and will also perform line justification, page numbering and titling, etc. as desired.

The principle benefit of such a program is that files prepared for use with it may be edited and corrected easily. Small or large amounts of material may be added or deleted, and unchanged material need not be retyped. After a set of changes, the program may be operated to produce a new copy which is properly paged and formatted. Documentation may thus be updated as necessary without requiring extensive retyping.

Note: This program is also available for PDP-8 users as DECUS No. 8-880.

Documentation is on the magnetic media.

Media (Service Charge Code): Manual (EB), RX50 Floppy Diskette (JA)

Format: OS/8

DECUS DM-103: WVU Sort-Merge Utilities

Author: Clyde Roby, James Coryell, Thomas W. McIntyre and Alan Smothers

Operating Systems: OS/8, OS/78, OS/278

Source Language: PAL-8

Memory Required: 8K

Other Software Required: For the DECmate II, OS/278 is available as DECUS DM-101

This is a package of programs for sorting OS/8 ASCII files. SORT is the principle utility. MERGE and XTRACT are companion programs to assist in the efficient sorting of large data sets.

SORT is designed to work on OS/8 compatible ASCII files. They are sorted by "records" of up to 512 characters. A record may be defined as consisting of "n" lines or as all the characters up to an arbitrary record mark character. The user has the option to define fields for sorting either by fixed column positions or bounded by arbitrary delimiting characters. The sorting can be ascending or descending, character or numeric within each field. A total of 32 keys can be defined by columns or 42 by delimiter. The sorting procedure is

multi-pass sort-merge with intermediate temporary files. The devices for the files may be specified to optimize the sorting. The original intent of the design was to be able to sort effectively even on a minimum system with as little as two DECTapes.

MERGE will merge two previously sorted input files into one output file. The same field definitions as for SORT are used.

XTRACT can be used to reduce the size of a data set before it is sorted. Records are selected from the input file and passed to an output file based on whether the value of a field is inside or outside of a specified range.

Note: This program is also available for PDP-8 users as DECUS No. 8-925.

Documentation is on the magnetic media.

Media (Service Charge Code): Write-Up (AA), RX50 Floppy Diskette (JA)

Format: OS/8

DECUS DM-104: DIRECT - OS/8 Directory Listing Program

Version: V7B

Author: Jim van Zee, Lab Data Systems, Seattle, WA

Operating Systems: OS/8, OS/78, OS/278

Source Language: PAL-8

Memory Required: 8K

Other Software Required: For the DECmate II, OS/278 is available as DECUS DM-101

This is an improved version of the directory listing program distributed with OS/8 V3C. It is functionally equivalent to the original version and includes updates which have been published up to the time of submission. To distinguish it from earlier versions it has been designated "V7B". The loading and operation instructions in the OS/8 Handbook apply without change to this version.

Significant features of this program include the ability to print multiple column listings in column order rather than row order, and the ability to print alphabetized directory listings. The new OS/8 date format is supported.

Improvements made in this version of DIRECT are: Block numbers and 'empties' may now be included in a sorted listing. Date sorts have been added and operation with symbiont fixed. Number of blocks used by the files shown is output.

Note: OCOMP has been included on the floppy for the convenience of the user.

This program is available for PDP-8 users under DECUS No. 8-608. DIRECT runs on all PDP-8's and PDP-12's and is available for PDP-8 users as DECUS No. 8-842.

Documentation is on the magnetic media.

Media (Service Charge Code): Write-Up (AA), RX50 Floppy Diskette (JA)

Format: OS/8

DECUS DM-105: PDP-8 Cookbook

Author: Floor Anthoni

Operating Systems: OS/8, OS/78, OS/278

Source Language: PAL-8

Memory Required: 8K

Other Software Required: For the DECmate II, OS/278 is available as DECUS DM-101

The PDP-8 cookbook is a collection of subroutines at the assembly level for the purpose of instant use.

Note: This program is also available for PDP-8 users as DECUS No. 8-602.

Documentation is on the magnetic media.

Media (Service Charge Code): Write-Up and Listing (DD), RX50 Floppy Diskette (JA)

Format: OS/8

#### DECIMATE II AND OS/278 TECHNICAL NOTES

During the OS/278 sessions at the symposium, the question of technical documentation came up. The DEC representatives at the session recommended the following: For OS/278, you need the OS/78 version 4 documentation. The kit is QF-022-GZ. It consists of:

AA-5748C-TC	OS/78 V4.0 User's Guide	\$30.00
AA-L264A-TA	OS/78 Primer	\$13.00

Also mentioned were:

EK-DECM2-RM	DECmate Programmer's Reference Manual
AA-J356B-TK	DECmate Word Processing Technical Notebook

I find the best way to place documentation orders and get information is usually through DECdirect. They are usually very helpful. If you do not have their

catalog, you can call 800-258-1710.

I have been trying to write some communications programs for the DECmate II under OS/278. The first was a simple terminal emulator. It listens to the serial line and displays what comes in on the screen and it listens to the keyboard and sends what it sees out on the serial line. That seems simple enough. I have done it many times before on earlier PDP-8 family machines. It turns out to be a little harder in this case however.

There are two serial ports on these machines. One is called the "printer port" but it is really bidirectional and programs just like any ordinary PDP-8 serial interface (other than the usual characteristic of DECmates that testing the flags clears them rather than leaving them set as in the older 8s). The other port is called the "communications port". It is programmed very differently from a normal serial port. It has many features and modes that seem intended to allow programming some sophisticated types of functions. Because it is strange and complex, I thought I would just use the familiar "printer port".

The problem is, when escape sequences arrive and are passed to the display, you seem to start missing incoming characters. It looks like the processing of the escape sequences by the display section of the DECmate II takes a relatively long time and it takes place in the "front panel" area where the normal PDP-8 can not interrupt. For that reason, there does not seem to be a clean way to avoid missing incoming characters.

During the Spring Symposium I asked people from DEC about this and confirmed the above analysis. It seems DEC gets around the problem in the WPS terminal communications program by using the "communications port". The trick is that this port has buffering for a number of incoming characters in the hardware. Unlike a typical KLSE type interface, you do not lose a character as soon as the next one arrives. As I understand it, the comm port knows how to stack up a number of characters and then pass them to your program one at a time when the program gets time to accept them. This way you avoid the problem with front panel processing latencies. The reason this is interesting is that I had not seen anything about it in any documentation for the DECmate II although I have seen a very hard to follow explanation of the programming of the port.

With luck I will sort out enough of the comm port programming to be able to get an OS/278 based terminal emulator program going and to adapt VAXCOM from the DECUS library so it can be used on DECmate II for file transfers between OS/278 and the VAX. I hope these will be the next DECmate II programs I get submitted to the DECUS Library. It is a little hard doing spare time development like this when you do not have easy access to the hardware though so don't hold your breath.

DECIMATE II, COS-310, OS/278, DSN, DECSPELL... - FROM RUDI STANGE

The following just arrived from long time 12 Bit Newsletter contributor Rudi Stange. It looks like his original letter, dated April 12, got lost and this is the original letter followed by an update covering new developments and topics from the most recent Newsletters.

"I received the January Newsletter (quite a remarkable size). In the mean time I have all OS/8 files (binaries and ASCII's) on RX50 diskettes, the same holds for all OS/78's along with a number of 12 Bit SIG library routines. I

also managed to have OS-278 on RX-50 and it works fine. As a matter of fact, there is more compatability between DECmate-II and PDP-8 programs than between DECmate-I and DECmate-II. Naturally I am not allowed to give any of these routines, but I could possibly copy the old RX01 SIG Library Floppy onto RX50 and give it to the DECUS Library to start things going..."

"With the CP/M version 2 for the DECmate-II we have the worlds best editor, "WPS" for it. I am doing some COBOL and Pascal MT plus on CP/M, and I am now using the WPSCONV program which converts WPS and CP/M files in both directions marvelously, much better than the (silly) WPSPIP from COS310 which really is more cumbersome and restricted.

"I have a question to your readers using the LQPO2 printer. How does the escape sequence look for pitch and for lines per page setting? With COS-310 the "SET LP:PAGE=NN" where NN= any number greater than 66 does not work. I filled in an SPR and got the answer to either use the LQP as an LA36 (which is no help) or to write myself an escape sequence. The maintenance manual gives "ESC [ Pn t" for Pn lines per page; according to ANSI Pn should be between 48 and 59, anyway, whatever I tried, the results were negative (for numbers between 0 and 2100). The same problem developed with pitch settings. If anyone has some solution for this, I would appreciate a hint in the next newsletter or to my a.m. address.

"COS-310 V9.2 and earlier (I do not have later versions) do not operate satisfactory on RX01 drives, i.e. were the hardware is RX01. It will however, work on RX02 drives in RX01 mode. Also when the system is on RK05, it will not allow booting a RX01 diskette as V8.2 and earlier versions do. I have no solutions yet for this.

"The answer to Dr. F.E. James request for "Digital Software News" is: The publication is actually called "Digital Software Dispatch" and it appeared quarterly. The order numbers for 1981 were e.g.

AA-L035A-BC	til March 81
AA-L441A-BA	til May 81
AA-L650A-BA	til July 81
AA-L834A-BA	til Sept 81

"There is no specific QXXXX number for this dispatch, the Q number refers to the specific software mentioned in it, and there are different ones in one dispatch. The PDP-8 software dispatch can be obtained from the SDC (Software Distribution Center) which is, if I am not mistaken, in Northboro. If Dr. James has no success, I will copy pages relevant to him. I think I have all issues on file since 1980.

P.S. (July 20, 84)

"Apparently this letter has been lost somewhere in the mail, since both of the latest Newsletters did not mention it. In the mean time I have got a Winchester disk on my DECmate-II, and it works marvellous. I have OS/278, COS-310, CP/M and WPS on it and I can switch from one operating system to another without rebooting a floppy (i.e. WPS System stays on RX50, but documents go to Winchester for very fast operation). Each system can be assigned any portion of disk space to it. There is a so called 'Master Menu', which allows any number of personal extensions i.e. direct access of programs in different

operating systems; I believe this is the only one in the world which allows such flexibility!

"I also work with DECspell. It comes on two RX50's, needs the CP/M option but no Winchester; it needs WPS V1.5 and it does not work with earlier versions (V1.5 offers some other advantages over earlier versions; e.g. it displays line, page and document numbers in the top line inverted and the current ruler in the bottom one. It still has a bug in it as far as printing of foreign characters on the LA50 is concerned, i.e. it only prints ASCII regardless of what character set you select on the printer. To (spelling) check a document, you type DS to the main menu, and the system asks you to replace the system floppy with the DECspell floppy, which loads the program to the CP/M (processor) and asks you to replace the DECspell floppy with the dictionary. After this it starts reading the document and displays the text while reading it, and intensifies words at fault (or unrecognizable). You can then either accept the correct word (also on display) or ask for more versions or continue etc. It works very fast and is completely interactive using the normal keys. I am going to build a German dictionary....

"Too bad you mentioned KERMIT just now. I erased this program not long ago from an old OS/8 floppy not knowing what it does. I still have a whole bunch of old floppies, and when I am lucky, I might find it a second time. I shall look for it in the near future. I generally use Poly TRM and Poly XFR to transmit ASCII and object files between DECmate-II and other computers, it works excellent and very smooth (it runs under CP/M).

"One more thing. There is a bug in COS310 V9.3 RXO1 handler, i.e. it garbles ASCII files when read from true RXO1 hardware. RXO1 floppies can however be read from an RXO2 hardware drive. There is a patch for it which I shall send to you the next time. There was no PDP8 software dispatch for May/June and the next one will appear in August (it has been issued every two months during the last three years). If there is interest, I can submit an index of it."

Rudi is at Digital Equipment GmbH., Freischutzstr. 91, D8000 Munchen 91 in Germany.

#### ACCESSING OS/8 FLOPPY DISKS AND OS/8 EMULATION ON THE VAX

Some time back I noticed a message from our old friend Lars Palmer telling about some work involving OS/8 and the VAX. I contacted Lars and recently got a copy of what had been done at his company.

Harald Nyman has written a program for the VAX called OS8FLOP that can read and write OS/8 format floppy disks on a VAX equipped with a floppy disk drive.

Harald has also written a PDP-8 emulator program called PDP8 for the VAX that can actually run some of the PDP-8 Maindec hardware maintenance programs. It can support running OS/8 on the emulated PDP-8 using an emulated RK05 disk implemented as a VAX direct access file. Lars says this produces the "slowest and most expensive PDP8 in the world". It is interesting and fun however and may have some real application in certain situations.

The program to access OS/8 files on floppy disks certainly has potential applications and Lars suggests it could be modified to work with other devices such as the TU58 ("DECTape II").

On the VAX, PHYIO privilege is required to access OS/8 floppies with these programs (that is, the VAX must be able to do "physical I/O" on the floppy disk so the user must have this privilege or the program must be "installed" with it). The following is adapted from the writeups that came with the material from Lars.

OS8FLOP is a program to handle OS/8 floppy disks on the VAX-11 computer. It can read and write files from/to floppy disks that have been initialized (written) on a PDP-8 computer. Files can be listed on the user's terminal or the system line printer (if they are in OS/8 ASCII) or copied to a VAX-11 directory. OS/8 ASCII, packed ASCII, binary data, or FORTRAN floating point data files can be handled.

The program works with a main dispatcher which receives a command and then invokes a suitable member of a collection of subroutines, to do reading, data conversion etc. The program prints a dot to indicate "OS/8 MODE". Respond with

COMMAND FILENAME.EX/OPTION <RETURN>

Type "HELP" to get a brief description of available commands.

COMMAND *****	ACTION *****
HELP	Produce this information
DIR	List directory
GET FILENAME.EX	Copy file from floppy to VAX
PUT FILENAME.EX	Copy file from VAX to floppy
FIND FILENAME.EX	Find start block 'and length of file
TYPE FILENAME.EX	List file on terminal
PRINT FILENAME.EX	List file on printer
DEL FILENAME.EX	Delete file
ZERO	Zero floppy directory
VAX	Return to VAX/VMS
DMP BLOCKNO.	Type logical block

OPTIONS:  
\*\*\*\*\*

/FLO	OS/8 -> VAX floating point
/BIN	Copy unformatted
/ASC	Dump as OS/8 ASCII
/PAC	Dump as packed ASCII
/OCT	Dump as octal words

PDP8 is a program that simulates PDP8 hardware on a VAX. The simulated 8 has a terminal, and one RKO5 disk. The disk is a direct-access file, containing ordinary 8-code programs. The simulator reads the 8-code, and executes it in FORTRAN. It gets rather slow...

\$ R PDPS

You are now in console mode. You can give the following commands to simulate the console switches:

LSR	load switch register
LA	load address
LXA	load extended address
CLEAR	clear all
CONT	continue
E	examine
DEP	deposit
SS	single step (toggles in/out; successive RETURNS will execute one instruction at a time)
STATUS	show status
AC	show AC
MD	show memory
MQ	show MQ
SR	show switch register

Arguments, if any, precede the command; no blanks in between.

Example:

To load "1034" into switch register, type

```
1034LSR
```

To examine switch register:

```
SR
```

To load and execute bootstrap:

```
OLXA
3OLA
6743DEP
5031DEP
3OLA
CLEAR
CONT
```

Now you will get the Keyboard Monitor's dot, and you can proceed with any OS8 command, and run any program that you have copied from an OS/8 floppy.

Booting the simulated 8 can be done faster with the command

```
BOOT
```

^C gets you back to OS8 Keyboard Monitor; ^Y aborts simulator.

VAX8 is a program that emanates from OS8FLOP which is used with PDP8. It reads/writes a VAX direct-access file called "RK05" as if it were an OS8 disk, and transfers files between it and ordinary VAX files. There are also other support programs to initially build the emulated OS/8 system disk from a real OS/8 floppy disk.

Written by

Harald Nyman  
AB HASSLE  
S-431 83 MOLNDAL  
Sweden  
tel.: 031-676259