DECUS 12 BIT SPECIAL INTEREST GROUP
NEWSLETTER

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.. OR ..

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NEWSLETTER DEADLINE

Deadline for ready-to-use material for the next Newsletter is August 27, 1976. Material requiring editing/re-typing must be in earlier.

S.I.G. NEWS

At the Spring US Symposium we officially changed our designation to 12 Bit Special Interest Group to reflect an area of interest that has spread beyond just OS/8 to include most PDP-8 and PDP-12 family hardware and software issues. I have appointed a steering committee for the S.I.G. The initial committee consists of Tom McIntyre, Jim Crapuchettes, Jim Coryell and myself.

Under the provisions of the new US Bylaws that allow appointment to the US Executive Board of representatives of Special User Groups we requested such representation at the last US Board meeting. Only one Special User Group is presently so represented - the DEC system 10/20 group. The US Board "tabled" our request and asked for various reports and/or presentations before further consideration. In view of the fact that we are the oldest and largest S.I.G., the fact that we have pioneered the S.I.G. concept and served as the model for most of the new S.I.G.'s that have come along since we started and particularly in view of the special needs and problems of the 12 Bit User community that cannot be fully represented otherwise I hope the Executive Board will act favorably on our request at the earliest possible opportunity.

INPUT TO DEC AT FALL US SYMPOSIUM

DEC is interested in seeing scheduled, for the Fall DECUS, papers by users which describe their needs in two particular areas. They feel such input will be helpful in considerations for future design phases. The two particular areas are:

1. Multi processing needs.
2. Transaction processing needs.

SPRING SYMPOSIUM ATTENDANCE

DECUS' new DS 310 (i.e., PDP-8/A) reports that we had 217 PDP-8 users at the Spring Symposium out of a total attendance of 790. That is not bad considering the comparatively restricted 12 BIT program. The program for the Las Vegas meeting should be considerably more extensive with panels and workshops scheduled to give some opportunity to talk to those who cannot submit formal papers before the deadline. If you have anything special along these lines, contact me or Tom McIntyre as soon as possible.

DECUS EUROPE SYMPOSIUM

The 1976 European meeting is scheduled for September 8, 9 and 10 in Munich. Gordon Bell will be a featured speaker. DECUS Europe and DEC Europe Educational Services are combining forces for training seminars the two days before the meeting. The European 12 BIT SIG will offer a half-day Training Seminar. It will be supplemented for those who request it, by a one and a half day DEC program. The 12 BIT SIG is planning an interesting and varied program.

The combined Training Seminar will cover RTS-8 along with SIG material on TECO, FORTRAN and "BAL" (PAL?). The RTS-8 program will cover multitasking system overview, executive description, background/foreground, communication rules, system generation, and examples. It should prepare the attendee to describe the RTS-8 system, implement programs in the system and configure an RTS-8 system. The student must be familiar with OS/8.

SIG Meeting Report

The Atlanta meeting began a new procedure for the Mini-Midi DECUS efforts to record sessions and provide the tapes to the Chairmen or in this case the symposia representative to abstract and report upon in the news letter. This is a set of loose observations derived from such a tape of the 12 bit SIG and PDP-8 Software Workshop meeting. The meeting began with Bob recapping the formation of the 12 bit SIG as outlined in the Steering Committee Report. The members of the initial Steering Committee are Bob Hassinger, Chairman and Newsletter Editor, Jim Coryell, Library Representative, Tom McIntyre, Symposia Committee Representative, and Jim Crapuchettes.

Bob Bean gave a synopsis of the progress in the PDP-8 Software area since last December appropriately entitled déjà vu. There has been considerable progress in the DECnet software for the PDP-8 and it was reported that field tests would be beginning about this time. A very impressive DECnet demo was of course running in the machine room and we were informed that it was a real piece of software and not a midnight special as we had seen in Los Angeles. MACREL is officially under development now but is not officially announced. This caused some confusion among the audience but I think Bob Bean's answers were reasonably to the point. The major point is that DEC can no longer do any major software developments on the 8 without MACREL so we can be confident it will actually happen. We were told, also unofficially that some of the original developers of OS/8 would be available to assist with the MACREL/Linker project.

A question was raised from the floor on which problems had been corrected in the OS/8 V3C release. The answer was that the list of fixes was contained in the release notes. Some interest was expressed in having that information published, perhaps in a future 12 bit SIG newsletter. The problem was pointed out by Bob Hassinger that frequently the user's description of his problem does not mesh perfectly with the description in the fix. Bob also commented on software lag time which is typically now about 6 months from the final code version to SDC shipment of the product. This time represents engineering testing and kit preparation and many other areas of trying to achieve a more reliable software product. We all wish it were shorter but for maximum reliability it should probably be even longer. The price on the current V3C release was apparently settled as representing a similar level of effort to the current RT-11 update which carries the same price.

Gary Cole was introduced and gave us a little history of how DEC got into the software business. Gary's main point was not historical but rather that good software cannot be had for free regardless of how cheap the system is. The story of the PDP-15 software maintenance was very instructive in this regard. The 15 was the first "small" system to have software maintenance and as a result of the effort to make a profit on the maintenance service, the products became so reliable that the maintenance was no longer needed and has been dropped. Gary's top of the head estimate on the ratio of software development time to test and certification time for reliable item was about 1:3. With such testing it could be reasonably expected that maintenance releases would not be needed.

There was considerable discussion of documentation and we flushed out Armand Vartaressian (who I hope will forgive my spelling of his name) who is now in charge of PDP-8 documentation. Armand is looking for specific inputs about the RTS-8 Users Guide and the OS/8 Handbook. The notion was presented that perhaps the OS/8 Handbook could consist of a small users Pocket Guide (approx 150 pages) and a large loose leaf reference manual (approx 1000 pages). The question came up of whether the smaller manuals could be distributed in machine readable (RUNOFF) form and was given a tentative affirmative answer. The larger manual was considered to be too long for machine readable distribution. (I have since calculated that 1000 pages is approximately 2.5 Million characters which would fit easily on an RK disk.) Bob Gappaert (to whom I also apologize for spelling) the Manager of Software Documentation reported that they have been studying the distribution of machine readable documentation and have okayed everything but the cost. He promised that they would have an answer to the question within two months (which is about now).

Several individuals suggested that they would like to see a hierarchy of handbooks at various levels from introductory to advanced levels. Another alternative suggested was to make the various chapters of the OS/8 type book available separately.

Bob Bean ended the session at the coffee break with a plea for more inputs in the area of language and operating systems developments. I believe it would be especially useful to orient our thinking in terms of the foreground/background systems and try to determine

which utilities language features, etc would be most valuable in that environment. I am particularly thinking of such things as second partition spoolers or multi-user language systems such as the RT-11 MU BASIC. The more inputs Bob gets the better off we are.

Steering Committee Report

The 12 bit SIG Steering Committee held its first meeting at the Spring DECUS meeting in Atlanta. Members present were: Bob Hassinger, Jim Crapuchettes and Tom McIntyre. Mario DeNobili was present as a spirit observer. Our major concerns were in maintaining representation for the 12 bit machines on the DECUS Executive Board and finding new avenues of communication with the approximately 50,000 family of 8 users.

We have no firm handle on the representation problem but have petitioned the Executive Board for a 12 bit mainframe representative position. With respect to the second area of concern we came up with two reasonably concrete ideas.

The first idea is to have an announced theme for the 12 bit SIG sessions at the DECUS meetings. We feel that if the prospective attendees know in advance the areas to be covered they will be able to prepare formal presentations and workshops along that theme. For the Las Vegas meeting we are proposing that the theme be real time systems and communications software. We hope to smoke out people with experience implementing RTS-8 systems or users of other real time systems. In the communications area I suspect that some of the older terminal emulator applications have been converted to RTS-8 amdn we all would be very interested in the problems encountered and solutions found.

Our second idea was to attempt some sort of regional meetings. We have had several people volunteer to organize one day (approx.) meetings in specific regions. Fred Brandt of Gallaudet College in Washington DC has volunteered his services; Norm Dotti has volunteered to organize a meeting in the Chicago area; Jim Crapuchettes will be trying to set something up in the San Francisco area; Jim Coryell will be working on the Los Angeles area; and Stan Rabinowitz has agreed to organize something in the Boston area. If any others are interested in setting up a short regional meeting please let us know. The format for such meetings is not settled, but the general picture would be a semi-open house at a local installation and either a general discussion seminar or short course on a specific topic. The local committee would set up motel arrangements if necessary and people would probably spend one night and one day at the meeting. The SIG would consider developing program packets and materials for such meetings, but this likely would require some sort of registration fee and complicate matters somewhat. The general intent is to provide a less expensive alternative to the semi-annual DECUS meetings for those who can't afford the time or perhaps the money for the latter. Our thoughts are still in the formative stage and we would appreciate any inputs you might have.

Tom McIntyre

Dear Bob:

At Decus, you kindly offered me an opportunity to contribute to your newsletter, so with a few hours remaining before your deadline, I finally got down to writing.

Introductions are in order, I am Gary Cole, a 30 year old, ex physicist (almost), programmer, systems designer, marketing person and engineering manager, most of it compressed into eight years here at DEC. My new role is that of "product manager" in our PDP-8 product line. Actually, this is a return to the 8's after six years of involvement with PDP-15's and the creation of XVM.

DEC has a number of different roles associated with the "product manager" identification, but mine is a fairly clear (a bit complicated) one of directing the development of PDP-8 software and hardware and planning the next generation of 8's. Coming from a background of large systems is probably a good way to enter today's 8 world as we are increasingly able to build sophisticated products in low cost packages. So much for introductions.

Last month's Decus was certainly a well attended one; but there were some disturbing elements which seem worthy of improvement. There seemed to be rather little education taking place in the 8 sessions in comparison to other groups. Much of this can be attributed to a low level of DEC program involvement, but some comes from an almost overpowering concentration on one area - OS/8 (especially in education). With such a large part of Dec's 8 business involved in real time and communications applications it would seem that a significant amount of time should be devoted to these areas, indeed several people expressed considerable frustration with the lack of RTS/8 sessions. This is an area of great concern to me as RTS/8 is becoming a very important product with lots of development left to be done. Even your recent questionnaire shows a strong interest in the enhancement of our multiprogramming capability.

On the other hand, the focus on OS/8 did bring out two important issues. One of these was the pricing of software releases and the other was the documentation of OS/8.

Concerning pricing, Dec is going to charge users some of the cost involved in releases of our operating systems. Nonetheless, we also understand that there is a general need to know when a release is coming and what it will cost. We should be able to do a better job of this in the future.

On the subject of documentation, I believe that all PDP-8 documents could use substantial revision - especially the OS/8 handbook. Once we get a good plan in place for how the handbook will be re-structured, I'll be communicating it to you.

Dec will be making a much stronger showing at Fall Decus in the 8 world, and I hope we can also broaden the range of the sessions to include the needs of more PDP-8 owners.

I'm looking toward the opportunity of meeting many of you in the years ahead.

Very truly yours, Cary Cole

PS: While this was written, we manufactured two more PDP-8 family systems!

NEW PROGRAM SUBMISSIONS TO DECUS

The following programs have been or are being submitted to DECUS but they do not have numbers yet. If you feel you need a copy of any of them before a number is assigned and they are ready for distribution you will have to contact the library. This causes an extra workload, though, so only do it if you cannot wait until their numbers are published.

Friedemann Brauer from Germany has submitted two items written by Karlheinz Siebold.

BLK PIP is an OS/8 utility program for the transfer of files and specific blocks. Files and blocks can be merged to one new file; output to a specified block is also possible. The program has proved to be very useful in the case of overwritten directories, etc., and the transfer of non-file-structured data sets.

DB8E is an OS/8 interprocessor buffer device handler. Together with the slave program IPSLAV it allows handling of any device belonging to the slave computer, under the device name IPB. It has been very useful for the submitters configuration of one PDP-12, two LAB 8e's, and PDP-8f all connected with interprocessor buffers (used two at a time).

JIM VANZEE HAS TWO NEW SUBMISSIONS:

VC8E. A 'TV' handler for a storage scope. It is a two-page handler which generates and displays alphanumerics on a storage oscilloscope using the standard VC8E or VC8A controller. Keyboard paging is used to erase the screen when it fills up, and optionally to return to the monitor. It is available on paper tape and DECtape.

LABL. An update to the TEXT handler that accepts ASCII characters and punches legible leader/trailer on paper tape. It is a very convenient way to punch the identification of a paper tape on its leader in a readable form. Other ways of doing that have required special programs, but because LABL is a standard handler it will work with any program (i.e., PIP, etc.) that accepts two-page output handlers.

PAGE8

I recently received a package of literature on PAGE8 from Dewar Information Systems, 622 Forest Ave., River Forest, IL 60305. It is a two-pass macro-assembler that runs under OS/8. Among its features are Macro facility, Automatic Paging, Expression Analysis, 6 types of constants, over 50 assembler directives, full support of up to 32 K of memory, improved error detection, the ability to work as a macro-assembler for other computers (i.e., cross assembler), extensive Cross-reference directory, External Symbol Directory for generating a set of definitions for selected symbols that can be included in assemblies of other program components, Literal Reference counts, and Local symbols, plus other features such as Table of Contents. It requires a minimum of 16 K to run.

I do not have access to a copy of PAGE8 so I cannot give a firsthand report on it, but I have talked to one or two users who generally feel it is a very useful tool. The principle complaint has been that the syntax is distinctly unlike PAL 8 and it is claimed to be irregular enough to cause some problems.

CONFLICTING DEVICE CODES

Hans W. Goebel from Purdue University relates an interesting anecdote about DEC and the sanctity of device codes in the 12 Bit World. When he first got his FPP 12 Floating Point Processor he started having all sorts of trouble with his standard DEC AFØ4 Data Acquisition System. He discovered to his dismay, that the AFØ4 and the FPP 12 maintenance IOTs were on the same device code 656x! His local service people re-wired the AFØ4 to device code 647x but he had no luck trying to get a revised diagnostic for it. He finally had to "disassemble" all the diagnostic tapes, edit and re-assemble them himself. He observes that DEC seems to be trying to live up to its reputation as the IBM of the mini-computer business.

I can appreciate DEC's problem in this situation (I was once in the business of designing special peripherals and systems for a main frame manufacturer), but how much would it have cost DEC to give a copy of the sources of the diagnostics to the customer? Maybe some day DEC (and everyone else) will learn to make software easily modifiable to accommodate simple configuration factors like different device codes and data break locations.

NOTE FROM JOHN YOUNGQUIST

John sent a patch for OS/8 EDIT to make rub out work better on CRT terminals. I will attach it. He points out the patch is not sophisticated enough to rub out back over tabs properly.

John notes that he has modified the PDP-8e powerfail/auto restart board to restart at 07600, thus bootstrapping OS/8. This allows remote control of an OS/8 system. He has a telephone controller that listens on the phone line for a special tone that controls power up of the system. The system powers down when the sending modem goes off for more than 3 seconds. This allows rebooting the system without terminating the call. The modification requires 4 diodes and two wires. The phone control is 6 I C's on a small board.

He has also modified his KL8E (M8650) serial interface card to allow the break key on his CRT to inhibit the flag thus allowing pauses in output (at 2400 Band) without special software.

John's address is: Versus Instruments Inc., Box 112, Fort Erie, Ontario (416) 871-0733.

V3C UPDATE CHARGES

Some users have been upset about the increased charges for updates that seem to have gone into effect recently. I am attaching a copy of a letter Norman Dotti wrote to Ken Olsen and the reply that explains some of the reasons for the increase.

NOTE FROM JIM WALSH

Jim sent along a few things.

1. He had trouble bringing up OS/8 FORTRAN IV in his system with locally built A/D, D/A and clocks. When he submitted an SPR the answer was "unable to duplicate the problem". Eventually he reached someone in DEC by phone who knew to steer him to page 4-15 of the FORTRAN IV Software Support Manual where he found how to insert instructions to counteract the ill effects of conflicts between his special IOT's and DEC's that were creating an unknown interrupt condition that was crashing FRTS.

2. Jim has written a general I/O subroutine for use by FORTRAN II/SABR. It requires seven pages of core: four pages for handlers and three pages of code. It is designed to allow random access to binary files on any device in the system. CALL DECODE allows input of I/O devices and/or file names, fetching of appropriate handlers, ENTERs the output file, and LOOKUPs the input file. CALL INPUT reads binary data into core, CALL OUTPUT writes binary to a device (file). CALL CLOSE closes and saves the file.

3. Jim is interested in corresponding with anyone who has worked on developing an APL processor for the 8/e. His address is: Jim Walsh, The University of Vermont, College of Medicine, Department of Physiology and Biophysics, Given Building, Burlington, VT 05401.

DF32 AVAILABLE

Dr. Andrew Short wrote to say he has a single platter DEC DF 32 disk (32 K words) in working order which is about 5 years old. His address is: Dept. of Veterinary Physiology, Royal (Dick) School of Veterinary Studies, Summerhall, Edinburgh, EH91QH, Scotland.

OPSCAN 17 HANDLER INQUIRY

Dr. David Kay recently acquired an optical mark reader (OPSCAN 17) from Optical Scanning Corporation, to be interfaced to his PDP-12 through a DP 12-B (data phone interface) with EIA RS 232-C mode of operation. He needs an OS-12 (OS-8) handler and DEC does not support one. He would like to hear from others who have such a handler. His address is: David C. Kay, M.D., NIDA Addiction Research Center, Box 12390, Lexington, KY 40511.

PL/1

Ray Smith wrote to ask for help in contacting anyone interested in developing/using a PL/1 type language for the 8. If you have any interest, contact Ray at: 24-004 MIT, Cambridge, MA 02139 (617) 253-4368.

CORRECTION FOR DSK: AS THE CCL DEFAULT DEVICE

Anyone trying the CCL modification to make DSK: the default device that was published in the last Newsletter, will have trouble if he uses it on a traditional 8. This is due to the limitation in the original 8 with respect to combining certain microcoded instructions. I am told that using a STL RTL works much better than the IAC RAL that I suggested.

Operation of OS/8 BUILD with a 2-page system handler and a long bootstrap

We are running OS/8 on a PDP8-E with a Sykes 7100 Floppy Disk as the system device. For some time we have been using a 2-page system handler, written by Mike Peterson, which provides full packing on the disk (four 12-bit words into six 8-bit bytes) thus increasing disk capacity and page transfer speed. As we have reported previously, there are modifications necessary in FRTS and BASIC to make them recognise this non-TD8E handler. We have recently tracked down a similar problem in BUILD.

The first indication of trouble was the apparent failure of the BOOT command to update the device control word table. We had assumed that block 0 of the disk contained the bootstrap followed by copies of the current 17647-17777 (F1 resident) and 7600-7777 (F0 resident), but further examination showed that with a 2-page handler 'BOOT' writes copies of the updated field 1 resident and the field 2 resident onto block 66 of the disk, and that block 0 contains only the bootstrap and the F0 resident code. The field 1 resident we were copying from block 0 was simply left over from earlier operation with a single-page handler and did not contain the updated table.

It is clearly now possible to accommodate in the unused portion of the first page of block 0 a longer bootstrap than the 47_8 specified by the OS/8 Software Support Manual; indeed, the TD8E bootstrap length is 103_8. If this is to be done, however, particularly if the bootstrap length is to exceed 100_8, it is vital to inhibit a transfer at 2350 in BUILD of 200_8 locations from 5400 (the block 0 area) into 10000 (the block 66 area) since this may overwrite the copy of the USR call routine at 10100. Unfortunately this is only prevented if the TD8E handler is recognised in core. This recognition is done at locations 2631-3 in BUILD, which will place 0 in location 45 if 7612 contains 3 (as in the TD8E handler). The problem can thus be cleared either by incorporating 0003 at location 12 in the first page of the new handler or, less preferably, by placing 7200 instead of 1472 at 2632 in BUILD.

We are now in a position to have stored on block 0 of the disk a large enough bootstrap to deal with the relatively complex decoding of the full 16-bit packed disk format. Since such a decoding procedure is incompatible with the requirement of a very short initial toggled bootstrap, we have adopted a hybrid approach whereby the disk-resident part of the bootstrap is stored in a simple 6-bit-per-byte format which can be read by a PDP8-E with the very simple coding sequence 'READ'; BSW; MQL; 'READ'; MQA; DCA. The required translation of this resident coding may be accomplished by writing the precompiled code onto disk with a 6+6-bit format program, and reading it off as if it were packed format. The resulting code (which incidentally is 4/3 times the final length of the bootstrap in core) is then inserted directly into the bootstrap section of the handler.

We are considering writing up the handler and bootstrap for submission to DECUS.

(Drs.) Ian Templeton and Peter Holtham
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From: Jim VanZee

MEMO TO THE OS/12 COMMUNITY REGARDING LINCTAPE FORMATTING

THE PURPOSE OF THIS NOTE IS TO ATTEMPT TO CLARIFY SOME OF THE CONFUSION REGARDING THE 'LENGTH' OF OS/8-COMPATIBLE LINCTAPES. TO BEGIN WITH, 'OS/12' AND 'OS/8' ARE SIMPLY DIFFERENT NAMES FOR THE VERY SAME PRODUCT, DISTRIBUTED IN ONE CASE ON LINCTAPE AND IN THE OTHER ON DECTAPE OR OTHER MEDIA. 'OS/12' DOES NOT, UNFORTUNATELY, MAKE ANY USE OF THE PDP12 SCOPE FOR COMMAND INTERACTION, ALTHOUGH A MODIFICATION OF VERSION 2 BY D. LLOYD RICE OF UCLA DOES HAVE THIS FEATURE. HIS VERSION, OS12/S, IS AVAILABLE FROM DECUS ON TAPE 12-129 AND WHILE IT WOULD BE VERY NICE IF SOMEONE WOULD EXTEND IT TO VERSION 3, IT IS A BIG IMPROVEMENT JUST AS IT IS.

ONE OF THE OBVIOUS OMISSIONS OF OS/12 IS A FORMATTING PROGRAM. APPENDIX D OF THE SOFTWARE SUPPORT MANUAL MENTIONS THAT OS/12 USES 129 WORD BLOCKS JUST THE SAME AS DECTAPES, AND IN FACT THE LINCTAPE HANDLERS SUPPLIED WITH THE SYSTEM DO IN FACT MAKE PROVISION FOR SUCH A BLOCK LENGTH. THIS 'WIERD' LENGTH WAS CREATED BY THE MARK12 FORMATTING PROGRAM WHICH <u>WAS</u> SUPPLIED WITH THE DIAL OPERATING SYSTEM. CHOOSING OPTION 'P' IN THIS PROGRAM CREATES TAPES WITH 3000_8 BLOCKS EACH 129 WORDS LONG. THERE ARE NO REDEEMING FEATURES FOR SUCH A BLOCK SIZE. SINCE OS/8 MAY AT TIMES REQUIRE SINGLE PAGE LOADS (128 WORDS), THE HANDLER HAS TO SAVE AND RESTORE THE 129TH WORD EACH TIME. THIS OBVIOUSLY RULES OUT INTERRUPT ROUTINES AND OTHER POSSIBLE INNOVATIONS..

MARK12 WAS CONVERTED FOR USE WITH THE PS/8 OPERATING SYSTEM BY CHARLES M, MOORE AND IS AVAILABLE FROM DECUS ON TAPE 12-95. A SIMILAR PROGRAM IS ALSO AVAILABLE ON 12-172 AND A SOMEWHAT DIFFERENT MODIFICATION BY JOHN R. RAINES COMES ON TAPE 12-155. IN THESE VERSIONS OPTION 'P' FORMATS 128 WORD BLOCKS, AGAIN CREATING 3000_8 OF THEM. THE LENGTH OF THE TAPE AS SHOWN IN THE DIRECTORY IS NOT DEFINED BY THE FORMATTING PROGRAM, HOWEVER, BUT IS ESTABLISHED BY PIP WHEN THE TAPE IS ZEROED OR SQUISHED. PIP HAS A TABLE OF DEVICE LENGTHS WHICH IT CONSULTS FOR ALL /S AND /Z OPERATIONS WHICH BEGINS AT LOCATION 13600. STANDARD 'OS/12' LINCTAPES ARE DEVICE 17 AND THE VALUE AT LOCATION 13617 ALWAYS CREATES TAPES WITH 737_{10} OS/8 BLOCKS - JUST THE SAME AS DECTAPES. EACH OS/8 BLOCK IS TWO PHYSICAL LINCTAPE BLOCKS (EITHER 128 OR 129 WORDS) AND WHEN ALL OF THIS IS CONVERTED TO OCTAL, WE FIND THAT PIP ONLY RECOGNIZES 2702 OUT OF 3000 (OCTAL) BLOCKS CREATED BY MARK12. THUS IF YOU HAVE USED MARK12 TO FORMAT YOUR TAPES, YOU CAN FIX UP PIP BY CHANGING LOCATION 13617 TO 6400, DO A '/S', AND ADD A FEW MORE BLOCKS TO YOUR EXISTING TAPES.

VERSIONS OF MARK12 RELEASED WITH DIAL-MS ALLOWED ANOTHER OPTION FOR FORMATTING 'LONG' DIAL TAPES. DOUG WREGE OF THE GEORGIA INSTITUTE OF TECHNOLOGY HAS COMBINED THESE MANY DIFFERENT VERSIONS INTO A SINGLE PROGRAM CALLED MARKOS WHICH IS AVAILABLE FROM HIM. THIS PROGRAM ALLOWS 2 CHOICES FOR FORMATTING DIAL TAPES AND 2 CHOICES FOR FORMATTING OS/8 TAPES. CHOICE 'S' CREATES 737 OS/8 BLOCKS CONSISTING OF TWICE THAT NUMBER OF 128 WORD BLOCKS WHILE CHOICE 'N' ALLOWS THE USER TO SPECIFY ANY NUMBER HE LIKES. TYPICALLY IT IS POSSIBLE TO FORMAT TAPES WITH AT LEAST 900 BLOCKS, IN FACT MOST USERS FIND THEY CAN ALWAYS GET 927 AND SOMETIMES MORE. THE EXACT NUMBER DEPENDS UPON THE CHARACTERISTICS OF THE TAPE DRIVE WITH THE OLDER DRIVES (THE ONES WITH THE BIG SWITCHES) SEEMING TO RUN SLIGHTLY SLOWER THAN THE NEWER DRIVES AND HENCE ALLOWING MORE BLOCKS TO FIT ON A TAPE.

IT IS COMMON TO SPECIFY A BLOCK COUNT ENDING IN '7' SINCE THE FIRST 7 BLOCKS ARE RESERVED, LEAVING AN 'EVEN' NUMBER OF 'FREE BLOCKS'. ONCE AGAIN THE NUMBER OF TAPE BLOCKS RECOGNIZED BY OS/12 IS DETERMINED BY THE CONSTANT IN PIP, NOT BY THE FORMATTING PROGRAM. FOR TAPES WITH 927 BLOCKS THIS CONSTANT SHOULD BE 6141 - EASY TO REMEMBER SINCE THIS IS THE 'LINC' INSTRUCTION! FORMATTING YOUR TAPES WITH MARKOS CAN OBVIOUSLY INCREASE THE STORAGE

CAPACITY OF A TAPE QUITE DRAMATICALLY. HOWEVER IT IS POSSIBLE TO DO STILL BETTER BY USING 256 WORD BLOCKS SINCE THIS ELIMINATES THE SPACE REQUIRED FOR HALF OF THE BLOCK NUMBERS, FORWARD AND REVERSE CHECKSUMS, ETC.

BASICALLY OS/12 OPERATES IN TERMS OF 256 WORD BLOCKS. HOWEVER, IN ORDER TO BE ABLE TO LOAD SINGLE-PAGE HANDLERS, IT IS NECESSARY TO BE ABLE TO READ OR WRITE HALF A BLOCK, I.E. 128 WORDS. TIM CLARK OF FRELAN ASSOCIATES (BOX 298, MENLO PARK, CA) HAS WRITTEN A SPECIAL HANDLER WHICH CAN USE STANDARD 'DIAL' TAPES BY BUFFERING THE I/O SO THAT ONLY 1 PAGE IS TRANSFERRED WHEN NECESSARY. NEEDLESS TO SAY THIS IS A VERY TRICKY HANDLER. HOWEVER, IF YOU ARE USING YOUR TAPES AS A BACK-UP STORE, OR FOR ARCHIVING PURPOSES, YOU USUALLY WANT TO PACK AS MUCH DATA AS POSSIBLE ON A TAPE. ALSO IF YOU ARE USING LINC-MODE PROGRAMS TO WRITE DATA DIRECTLY ON A TAPE IT IS NICE TO HAVE SUPER LONG ONES.

THE PROBLEM IS HOW TO FORMAT THEM. UNFORTUNATELY MARKOS DOES NOT HAVE A 'QUESTION-AND-ANSWER' INPUT FOR THE 256 WORD FORMATS, SO IT IS NECESSARY TO MODIFY THE PROGRAM ITSELF. THIS MAY BE DONE SEPARATELY FOR OPTIONS 'L' AND 'B' (SHORT AND LONG TAPES, RESPECTIVELY), SO YOU CAN CHANGE ONE OPTION WHILE LEAVING THE OTHER ALONE. THE CHANGES SHOWN BELOW CAN BE MADE WITH ODT, OR MORE CONVENIENTLY, WITH FUTIL, A 'SUPER ODT' PROGRAM WRITTEN BY JIM CRAPUCHETTES (ALSO OF FRELAN ASSOCIATES) AND AVAILABLE AS DECUS 8-608.

TO INCREASE OPTION 'L' FROM 1015_8 BLOCKS TO 1200_8 ($=640_{10}$ OS/8 BLOCKS):

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MARKOS:   4066/1024 1207
          4074/1000 1177
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AND TO CHANGE OPTION 'B' FROM 896_{10} BLOCKS TO 1007_{10} BLOCKS ON A LONG TAPE:

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MARKOS:   4524/1624 1766
          4532/1600 1755
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EITHER PAIR OF LOCATIONS CAN BE CHANGED TO EITHER PAIR OF VALUES. THE FIRST NUMBER IS 10_8 + THE HIGHEST BLOCK NUMBER WHILE THE SECOND IS JUST THE LAST BLOCK NUMBER AND IS USED FOR CHECKING, NOT FOR MARKING THE TAPE. TAPES MARKED IN THIS WAY MUST, OF COURSE, BE READ OR WRITTEN BY THE SPECIAL DL: HANDLER MENTIONED ABOVE, NOT THE REGULAR LINCTAPE (LTA-) HANDLERS. THIS MEANS THAT THEY ARE CONSIDERED TO BE A 'DIFFERENT DEVICE' BY PIP AND THE APPROPRIATE TABLE ENTRY FOR SETTING THE LENGTH CONSTANT IS AT LOCATION 13674. CHANGING THIS LOCATION AS SHOWN BELOW AND DOING A DL:<Z (OR ZERO DL:) OPERATION WILL INITIALIZE SUCH TAPES.

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PIP:      13674/0000 6021   CHANGE FOR 1007 BLOCKS ON A LONG TAPE
                     6800   CHANGE FOR 640 BLOCKS ON A SHORT TAPE
```

TO FIT 640 BLOCKS ON A SHORT (150FT) TAPE IT IS NECESSARY TO WIND ONLY 2-3 TURNS ON AT THE START, SET THE UNIT TO LOCAL, PRESS THE MARK SWITCH WHEN TOLD TO DO SO AND HOLD IT DOWN, THEN QUICKLY FLIP TO REMOTE. THIS AVOIDS THE 'WANDERING' WHICH OTHERWISE OCCURS. NOTE THAT THIS PROVIDES ALMOST AS MUCH SPACE ON A SHORT TAPE AS IS 'NORMALLY' AVAILABLE ON A STANDARD LONG (260FT) TAPE. THE CHOICE OF 1007 BLOCKS FOR THE LATTER WAS MOTIVATED SIMPLY BY THE DESIRE TO HAVE THE DIRECTORY SHOW '1000 FREE BLOCKS' INITIALLY. THIS IS A 37% IMPROVEMENT OVER A STANDARD OS/12 DATA TAPE. THE ONLY DISADVANTAGE TO USING 'DL' FORMATTED TAPES IS THAT THEY CANNOT BE USED AS SYSTEM TAPES BECAUSE OF THE DIFFICULTIES IN WRITING A SYSTEM HANDLER FOR THE LARGER BLOCK SIZE. THIS MEANS THAT ON A '2-TAPE' SYSTEM YOU WILL HAVE TO MOVE FILES FIRST ONTO A REGULAR OS/12 SYSTEM TAPE AND THEN OFF AGAIN ONTO A DL STORAGE TAPE. OF COURSE WITH A DISK SYSTEM THE TRANSFER COULD BE DIRECT, although THERE CAN NORMALLY BE ONLY 1 DL TAPE MOUNTED AT A TIME.) ANY PROGRAM WHICH PERMITS 2-PAGE HANDLERS CAN USE DL TAPES IN THE NORMAL WAY,

THE FLEXIBILITY IN FORMATTING TAPES LEADS TO THE PROBLEM OF HAVING TAPES WITH DIFFERENT NUMBERS OF BLOCKS ALL OVER THE PLACE. IN ORDER TO USE PIP TO DO A /S OR /Z OPERATION YOU MUST, OF COURSE, KNOW HOW LONG THE OUTPUT TAPE IS. UNFORTUNATELY THE '=' OPTION IN THE COMMAND DECODER LINE CANNOT BE USED FOR THIS (ALTHOUGH IT IS THE OBVIOUS AND NATURAL CHOICE!) SO IT IS USUALLY NECESSARY TO STANDARDIZE ON AT MOST 2 LENGTHS AND USE ODT TO FIX PIP WHENEVER NECESSARY.

THIS IS A GREAT BOTHER. THE CURE IS TO SWITCH TO DECSYSTEM-8 WHICH IS AN ENHANCED VERSION OF OS/8 DEVELOPED BY JOHN R. COVERT AND DOUG WREGE AND AVAILABLE FROM DECUS AS 8-646. UNDER DS8 TAPES MAY BE CREATED WITH A 'PARAMETER' BLOCK WHICH REMEMBERS (IN THE LAST BLOCK OF THE DIRECTORY) HOW LONG EACH TAPE IS. THE 'SQ' COMMAND THEN TAKES THIS INTO ACCOUNT. THE PARAMETER BLOCK ALSO ALLOWS TAPES TO BE LABELED SO THAT THEY CAN BE FOUND AUTOMATICALLY BY THE SYSTEM...AND OTHER GOOD THINGS!

COPYING NON-STANDARD TAPES IS ALSO A PROBLEM. AGAIN A FLEXIBLE PROGRAM SUCH AS DT/TDCOPY IS NOT CURRENTLY SUPPLIED WITH OS/12. IF YOU USE PIP TO COPY TAPES THE DEVICE LENGTH TABLE MUST BE CORRECT FOR THE OUTPUT TAPE. IF YOU ATTEMPT TO USE THE COPY PROGRAM WHICH COMES ON TAPE 12-95 YOU WILL LOSE BECAUSE THIS PROGRAM DOES NOT CHECK FOR THE END-OF-TAPE, BUT SIMPLY ASSUMES 737 BLOCKS; THE DIRECTORY WILL LOOK OK, BUT THE DATA WILL BE MISSING! YOU CAN USE FOTP TO COPY TAPES WITHOUT KNOWING HOW MANY BLOCKS THEY HAVE SINCE FOTP SIMPLY USES THE NUMBER IT FINDS IN THE DIRECTORY. FOTP CAN ALSO BE USED TO 'ZERO' A TAPE WHICH ALREADY HAS A DIRECTORY USING THE *.*/D COMMAND. HOWEVER, THIS WILL NOT MERGE EMPTIES ACROSS DIRECTORY BLOCKS SO THAT AFTER DELETING ALL THE FILES, THE DIRECTORY MAY LOOK LIKE:

(EMPTY) 340
(EMPTY) 400
(EMPTY) 260

THIS IS UNFORTUNATE SINCE WHEN YOU NOW TRY TO TRANSFER PROGRAMS TO THIS COMPLETELY EMPTY TAPE THEY WILL NOT GO AT THE BEGINNING! THE REASON IS THAT FOTP TRIES TO FIT PROGRAMS INTO EMPTY AREAS WHICH ARE ROUGHLY THE SAME SIZE AS THE INPUT WHILE OTHER PROGRAMS USUALLY PUT OUTPUT FILES IN THE LARGEST EMPTY. THUS FOTP WOULD PUT A 240 BLOCK SOURCE FILE NEAR THE END OF THE TAPE IN THE EXAMPLE ABOVE, WHILE PIP WOULD PUT THE SAME FILE RIGHT IN THE MIDDLE - EITHER WAY YOU WOULD BE UNHAPPY! THE ONLY CURE IS TO FALL BACK UPON PIP TO PACK ALL THE EMPTIES TOGETHER WHICH MEANS THAT YOU HAVE THE DEVICE LENGTH PROBLEM AGAIN.

OBVIOUSLY OS/12 USERS NEED A GOOD COPY FACILITY WHICH COULD DETERMINE THE NUMBER OF WORDS/BLOCK AND COPY UNTIL REACHING THE END OF THE TAPE (OR A PREDETERMINED NUMBER OF BLOCKS). SUCH A PROGRAM WOULD ALSO REMOVE THE PROBLEM OF SUBMITTING NON-STANDARD TAPES TO DECUS. WE ALL LIKE TO PUT AS MUCH 'STUFF' ON A TAPE AS WE CAN, BUT WITHOUT THE EXISTENCE OF A VERSATILE COPY PROGRAM WE ARE PRETTY MUCH LIMITED TO SENDING TAPES WITH ONLY 730 BLOCKS OF INFORMATION.

THE ABOVE WAS NOT INTENDED TO BE (AND MOST CERTAINLY IS NOT!) A COMPLETE DISCUSSION. HOPEFULLY IT WILL BE HELPFUL TO 'NEW' USERS OF OS/12 WHO COME UPON THE SCENE, AS THE AUTHOR DID, WITHOUT A LONG ASSOCIATION WITH THE PDP12-LINC8 WORLD. OTHERS WHO HAVE MORE ACCURATE INFORMATION, OR OTHER IDEAS ON THESE TOPICS, ARE ENCOURAGED TO CONTINUE THE DISCOURSE IN FUTURE OS/8 NEWSLETTERS.

ETOS COMMENTARY

Reverend Chase writes:

Dear Bob:

I think - reflecting a little on the past 4 years - that no small amount of end-user grief is related to the extraordinary turnover in the industry. I lived for 3 years in the shadow of the Vatican, but the Byzantine politics and palace revolutions within (one example only) the Edu-Group, or the turnovers in PDP-8 software personnel, could teach the very- and right-rev. Monsignori some new tricks! Sitting for a moment and thinking of people one used to know who are now .. who-knows-where brought this home to me.

(A parson's beef: I wonder if the country in general hasn't undervalued continuity and over-rewarded the flash in the pan, the razzle-dazzle high-pressure short-lived performance. There are bitter moments when one thinks that perhaps the 'con' man is our national hero.)

I approached ETOS from a different angle, which probably explains the difference in our reactions. It was a viable solution to an otherwise miserable situation, namely, that without it one has only two ways of using his system in a school:

#1.) Run a multi-user 'BASIC' or DECUS FOCAL-5/69 ("QUAD' is very slow) as the only available language or level of language; or,

#2.) Pre-empt the system for oneself or for one gifted student and lock out everyone else in the school.

Another factor is that I have hopes of tying in some treasury work eventually, again, the same problem.

ETOS appears to be a practical answer. One can 'fine-tune' the privileges and protections on accounts so that the expert user (well, relatively expert as our experts go hereabouts!) is not too confined and yet the run-of-the-mill user can't bomb the whole system. Most FOCALs, for example, are far too 'friendly' and will cheerfully blow up given certain commands. No matter - type ↑VS return and 'boot' and your private OS-8 is recreated. The public SYS: area is write-locked to normal users, a necessity in a school. Most 'bombs' will not wreck the user's private DSK:, but this too can usually be recovered.

The next version of ETOS will, I understand, support more devices. DF-32/RF08 and TC08 were mentioned. And a usage log file will be kept along with JOBnn.SBK in account 0,3. I rewrote the 'ACCNT' program to get rid of user padding of names (@@@@) and it has been improved in other ways since.

There's quite a group of 6100 and 6200 functions available. TIME/R can be incorporated, e.g., in "batch' jobs to clock run-times.

You once remarked that it's a nuisance coding routine I/O, ECHO, maybe rub-out features into every single separate machine-language program. The ETOS system handles all this with pretty decent buffers and can be set (by program or from keyboard) for things like ↑S, ↑Q, ↑C, ↑O, ↑P, U plus a wide choice of break masks. I used three different sets of status ('KSTAT') words in the FOCAL I was toying with.

My "LT:" pseudo-line printer handler for console recoded easily and made use of system options, e.g., it enables †P if and only if the calling program did, like "FOTP'. It's available to each of our 3 users - with the DECwriter, it's an essential.

EDUCOMP is mainly "EDU" (& town budget) oriented. They pretty well standardized on the 8/E & successors some time ago. The obvious device for swapping on the 8/E etc., is the RK05/RK8E, because TD8E DECtape has just soared, TC08 is astronomical, a large RF08 beyond imagination for many of us. DEC is - or so I think - deliberately trying to drive DECtape out of existence. The true faith in Maynard is floppies (and I don't think very much of the ones I've seen!).

I find the RK05 reliable, with some care. Keep it clean & the disks as well; not having any rugs or upholstery around almost certainly helps (all fuzz on records in our F.M. station is the same color as the rug ... gives one to think).

From: JOHN YOUNGQUIST

```
/ADDITION TO OS/8 EDITOR TO ERASE CHARACTER FROM CRT TERMINAL
/FITS IN HOLE @ 2762
/
/
/OVERLAY PAGE 0 CONSTANT "BACK SLASH" WITH "BACK SPACE"
/
00104   0210   BSPAC,   210                /BACK SPACE
/
/
/OVERLAY RUBOUT ROUTINE WITH "JMP ERASE"
/
01522   5723            JMP I .+1          /GO TO ERASE ROUTINE
01523   2762            ERASE              /ERASE CHAR FROM CRT
01524   1017   RBRET,   TAD AXIN           /GET LAST WORD OF INPUT
/
/
/ROUTINE TO ERASE CHARACTER FROM SCRENE
/
02762   1104   ERASE,   TAD BSPAC          /GET BACK SPACE
02763   4470            JMS I OUTL1        /BACK UP CUSOR
02764   1026            TAD C240           /GET SPACE
02765   4470            JMS I OUTL1        /ERASE OLD CHAR
02766   1104            TAD BSPAC          /BACK UP AGAIN
02767   4470            JMS I OUTL1
02770   5771            JMP I .+1          /RETURN TO RUBOUT ROUTINE
02771   1524            RBRET
/
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BECAUSE SOME OF THE FOLLOWING INFORMATION DID NOT MAKE IT INTO THE NEW DECUS CATALOG IT IS PRESENTED HERE TO MAKE IT AVAILABLE BEFORE THE NEXT CATALOG IS PREPARED.

DECUS NO. 8-802

SSP: SCIENTIFIC SUBROUTINE PACKAGE

SANDIA LABS (IBM) AND H. DAVID TODD (WESLEYAN UNIVERSITY)
CONVERTED FROM DECUS 10-101A BY ROBERT HASSINGER
(LIBERTY MUTUAL RESEARCH CENTER, HOPKINTON, MASS.)
AND LARS PALMER (HASSLE, SWEDEN)

THE SCIENTIFIC SUBROUTINE PACKAGE (SSP) IS A COLLECTION OF OVER 250 FORTRAN IV SUBROUTINES FOR SCIENTIFIC AND MATHEMATICAL APPLICATIONS. OVER 200 OF THE SUBROUTINES ARE PROVIDED IN BOTH SINGLE AND DOUBLE PRECISION VERSIONS. THE SSP IS A COLLECTION OF I/O FREE COMPUTATIONAL BUILDING BLOCKS THAT CAN BE COMBINED WITH USER'S INPUT, OUTPUT AND COMPUTATION ROUTINES TO BUILD COMPLETE APPLICATIONS PROGRAMS.

TAPES 1 THRU 5 CONTAIN THE COMPLETE SSP WITH COMMENTS. TAPE 6 CONTAINS ALL OF THE SSP THAT DOES NOT REQUIRE A DOUBLE PRECISION CAPABILITY WITHOUT COMMENTS. TAPE 7 CONTAINS THE PARTS OF THE SSP WHICH REQUIRE A DOUBLE PRECISION CAPABILITY WITHOUT COMMENTS.

THE COMMENTS IN EACH SUBROUTINE FILE (TAPES 1-5 ONLY) PROVIDE LIMITED DOCUMENTATION. FULL DOCUMENTATION IS AVAILABLE IN IBM MANUAL NUMBER GH20-0205-4 WHICH IS NOT AVAILABLE FROM DECUS AND MUST BE OBTAINED SEPARATELY BY THE USER.

MONITOR/OPERATING SYSTEM:	OS/8
CORE STORAGE REQUIRED:	8K MINIMUM
HARDWARE REQUIRED:	ANY OS/8 CONFIGURATION
OTHER SOFTWARE REQUIRED:	OS/8 FORTRAN IV
SOURCE LANGUAGE:	FORTRAN IV
RESTRICTIONS:	SOME ROUTINES MUST BE MODIFIED BY THE USER TO AVOID OS/8 FORTRAN IV RESTRICTIONS. A FEW OTHER ROUTINES SUCH AS RANDU ARE UNUSABLE UNDER OS/8.
AVAILABILITY:	TAPES 1 THRU 5 ARE AVAILABLE AS A SET FOR $100 ON DECUS SUPPLIED DECTAPES OR $40 ON USER SUPPLIED TAPES. TAPES 6 AND 7 ARE AVAILABLE SEPARATELY AT $20 (DECUS TAPE) OR $8 (USER TAPE) EACH.

NATIONAL LOSS CONTROL SERVICE CORPORATION

Long Grove, IL 60049 • 312 | 540-2400

KEMPER CORPORATION

#17 16.

June 4, 1976

Mr. Kenneth H. Olsen
Digital Equipment Corporation
Maynard, MA 01754

Dear Mr. Olsen:

Enclosed is a copy of a letter sent to you a month ago. While I do not expect you to personally respond, I do think that my questions are reasonable and warrant a response.

To-date, I have received no comments or acknowledgements from Digital. Since I am in the process of evaluating central processors and peripheral equipment for our company's future data processing needs, and this equipment includes a PDP-11/70 among the processors being evaluated, we would like to know that when we do have questions regarding Digital hardware and software that we can receive a reasonable response to them.

Thank you for your assistance.

Very truly yours,

Norman R. Dotti, P.E.
Manager,
Noise & Vibration Services

NRD/saa
enc.

April 28, 1976

Mr. Kenneth H. Olsen
Digital Equipment Corporation
Maynard, Massachusetts 01754

Dear Mr. Olsen:

I am writing to you because of a problem which normal channels have been unable to satisfactorily solve. For the record, our salesman looked into the situation for us and was given an answer to relay to us. I believe he has done his job, but that what he was told is not satisfactory.

I am referring to the new prices for the maintenance releases of the OS/8 operating system and related software. In our configuration we are using three different products consisting of the basic OS/8 system, the extension kit, and FORTRAN IV. In the past, maintenance releases have cost $50 per product. This, we were told, paid only for the cost of duplication. When enhancements were added, as occurred between versions 2 and 3 of OS/8, a slight additional charge was added.

When version 3C was announced at the last DECUS symposium, I issued a purchase order for these three maintenance releases. I was then told that the price for the maintenance software (please note that I an stressing the fact that these are maintenance items, containing fixes to software problems) is now $150 for OS/8, and $175 each for the extension kit and FORTRAN IV. These costs, I am told, only pay for the cost of duplication.

While I am an engineer, I have had some training in economics. In my present capacity, I am also manager of a profit center, so I have a feeling for what it costs to do various things. With this as background information, as well as the costs for various DEC products and manuals, it is my contention that these prices are <u>very</u> much in excess of what it should be costing DEC to supply these maintenance releases.

By way of illustrating this, let us look at what it might take to perform this service. The necessary main frame, dual DECtape drive, memory and terminal could, I am sure, be purchased for $30,000. Paying off this capitol expenditure over five years, and at 8% per year yields a five year cost of approximately $44,080, or $8,816 on a yearly basis. Monthly maintenance on this system would be on the order of $125, for a total annual cost of $1,500 per year.

Since it does not take a software engineer to duplicate and format DECtapes, I am assuming that the salary and fringe benefits for such a person is $10 per hour. This is by no means unreasonable, and it probably would cover room rent at the same time. At this figure, the annual cost for an operator is $20,800 for a 52 week year. This gives a total per year cost of approximately $31,116.

To be fair, we cannot assume that the system (including the operator) will be productive for a full 52 weeks. Assuming a two week vacation and two weeks for down time due to equipment problems, the above cost would be spread out over 48 weeks, resulting in a weekly cost of $649. Again, assuming the operator/machine system is not fully productive during a day, but that it can function for seven hours per day, this results in an hourly cost of approximately $18.54.

Having formated and copied many DECtapes, I feel that a figure of six tapes per hour (formating and copying) is not unreasonable. Distributing this hourly cost over six tapes results in a duplication cost of approximately $3.10 per tape.

Of course, there are other costs involved. Figuring a roll of unformated tape at $8.00, $5.00 to process the order (per roll), $2.00 to mail the completed tape, and $5.00 for documentation (one person told me that updated manual information was being sent with the software), this totals to approximately $23.00 per roll.

I have been told in the past that DEC does not make a profit on this. However, giving you a 30% before tax return would raise the price to approximately $33.00. This is close to $50.00, but a far cry from $150.00 to $175.00 per software release. Of course, there are undoubtedly a few things I have missed, but my figures cannot be very far off. If they are significantly incorrect, then I suggest that something is very wrong with some part of your order processing and software distribution system.

I do not object at all to paying for software enhancements. However, when a Software Product Description states that the product I am buying will perform in a certain manner, and then it fails to perform in that manner, I do not expect to be overcharged for the correction of those errors. Reasonable duplication costs are to be expected, but I do not consider the current prices to be at all reasonable. It may very well be that with the changes that are apparently being made in the PDP-8 area that software development and other costs are being loaded into the costs for the software maintenance releases. If this is the case, then I would much prefer that you simply state this rather than pretend to the end users that it is costing you $150.00 to $175.00 to copy a roll of DECtape.

At the last DECUS meeting DEC representatives told us much about the "software guarantee". Several questions were raised about the true meaning of a "guarantee" and who really profits by it. While the PDP-8 users were concerned, the PDP-11 people were considerably more disturbed because their software products are much more expensive. New revisions and maintenance releases can become extremely expensive over a short period of time. As a potential user of a fairly large PDP-11 system, I hear on one hand about "software guarantees" and other related benefits, but on the other hand see the costs of maintenance releases of software increasing 300+%.

The extra $350.00 does not particularly concern me. What does concern me is that this may be a leading indicator of things to come. Any comments you have on this subject would be appreciated.

Very truly yours,

Norman R. Dotti, P.E.
Manager,
Noise & Vibration Services.

NRD:cp

cc: DECUS OS/8 SIG
Bob Hassinger
Coordinator
OS/8 Special Interest Group
c/o DECUS
146 Main Street
Maynard, Massachusetts 01754

bcc: Ernest Ciccone
Digital Equipment Corporation
5600 Apollo Drive
Rolling Meadows, Illinois 60008

digital

June 15, 1976

Mr. Norman R. Dotti, P.E.
Manager
Noise & Vibration Services
National Loss Control Service Corporation
Long Grove, Illinois 60049

Dear Mr. Dotti:

I would like to apologize for both the lateness of this response, and the misinformation you have received regarding pricing of some of our software products. I realize that our evolving policies relative to software licensing, pricing, and "guarantee" represent a perceptible change in the PDP-8 software world, but our intent has always been to minimize the impact of these changes. Please allow me to attempt to explain our policies so that you can better understand why we feel they are of mutual benefit to both customers and Digital.

1. Past "Maintenance Release" pricing: During the early years of our software licensing program, a number of our software products, including OS/8 and RT-11, priced update releases to recover the costs of media, duplication, and handling. This was done also to encourage customers to obtain the latest versions of software, in order to get maximum utilization of our maintenance efforts. as we better understood the costs of software, it became necessary to try to recover part of our development and support costs, in order to continue to justify, from a business/investment standpoint, the software engineering efforts required to properly support our large customer base. We have tried to adopt a middle of the road approach, understanding the previous expectations of our customers, yet experiencing increasing pressure to justify the substantial software engineering investments needed to support our users.

2. "Software Guarantee" and "Maintenance Release" pricing: Having now had substantial experience with our software licensing program, we are implementing the following

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policy relative to maintenance release pricing:

a. During the first year following purchase of a software license, in addition to the support provided to the customer depending upon the support category of the software product, software updates (which may or may not include enhancements or new options) which become available will be provided at a price equal to the list price of the actual distribution media on which the software is written. For example, $12 per reel of DECtape.

b. Following the first year, one or both of the following options are available:

   (1) For most major products, a one year subscription service is available which provides a continued level of support to the customer (typically SPR service and subscription to the maintenance periodical) plus a copy of each software update which becomes available during the year.

   (2) Software updates which become available may also be purchased separately. Pricing for customers not covered by the initial one year period or subscription service will be based on various criteria, such as product content, engineering development cost, duplication cost, etc.

I hope this explanation clarifies Digital's intent. If you would like additional information, or examples of pricing for current products, please call me at 617-897-5111, extension 2381. Please be assured that we are most concerned with insuring that our policies are clear, and in keeping with our commitment to quality products which provide the right solution to our customer's problem.

Very truly yours,

William H. Munson

William H. Munson
Software Product Manager

/lm

cc: Mr. Kenneth Olsen
Mr. Ernest Ciccone
Mr. Bob Hassinger