digital INTEROFFICE MEMORANDUM

SUBJECT: Protection and Relocation for the 11/25

DATE: September 28, 1970

TO: PDP-11 Coordinating Committee

FROM: Gordon Bell

cc: Bruce Delagi

DEPARTMENT:

Let me thank Bruce for getting this proposal memo out into the open. Three comments (so far):

1. This subject (I believe) is a lot more important than an issue like floating point data format or a calling sequence for subroutines because it affects all software (monitor, I/O, trans-lators, utilities, and all user-written programs). Therefore, can we hurry and get a small group together to really consider it and make sure it's right in the same way the two committees worked on floating point? Getting a group together won't harm the 11/25 schedule if, say they're given the guideline of having about the same amount of hardware (± 2 registers). In fact, I believe it will speed up the 11/25's by about 6 months, because it will force the monitor structure to be outlined - and thus the software will be able to use the hardware instead of having to be written in spite of it.

2. At least make the 3 segments (register pairs) have control bits to indicate whether a segment is read-only, read-write, execute-only, or stack. In this way you aren't stuck with the program organization Bruce is dictating by his hardware registers. Since Bruce's comments deal with time-sharing, I assume that's the program structure on the PDP-10. We've gone through a fair amount of pain to modify the structure to allow several independent programs to access common data. Also, I would hope the problems on the 10, like not being able to swap a program doing I/O, are solved with this organization. (For process control this seems very important because it allows programs to be brought into core and executed only when there's data ready in an I/O area.) Finally, the biggest single problem of the 10 monitor is its size. This is partially caused by the fact that I/O can only be done in the monitor (in monitor mode). Therefore I would hope that user written I/O control programs (e.g., disk, special I/O) are permitted. These routines do work for other user programs, placing results in the calling user's area.

3. I hope to have an extensive alternative proposal which uses the same amount of hardware.

bwf