

SCIENCE AND ENGINEERING RESEARCH COUNCIL
RUTHERFORD APPLETON LABORATORY

COMPUTING DIVISION

D I S T R I B U T E D C O M P U T I N G N O T E 5 5 3

PERQ UNIX IMPLEMENTATION NOTE 6
The flavour of UNIX for the PERQ

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The current plan for implementing UNIX on the PERQ involves using software developed by CMU for the SPICE project. The two major pieces of software which will be used are the ACCENT kernel and the SPICE interim filesystem.

The UNIX user will see no major differences between UNIX version 7 running on a VAX and the proposed SPICE/UNIX implementation on the PERQ. Each process will have a 2**32 16 bit word virtual address space and mixed language support (F77, C and PASCAL) will be provided.

1. The ACCENT kernel

A set of interface routines will be provided to map UNIX system calls onto ACCENT messages. Therefore standard C programs will work. Any UNIX program which relies on being able to access UNIX kernel data structures directly will not work. However, there should be very few of this type of program.

2. The SPICE interim filesystem

The SPICE interim filesystem is the modified POS filesystem designed to run as a separate process on top of ACCENT. This filesystem differs from a true UNIX filesystem in the following ways:

- a) filenames may be longer than 14 characters.
- b) the name server does not differentiate between upper and lower case letters.
- c) UNIX links are not supported.
- d) there is no protection.
- e) there are no Inodes.
- f) run-file formats will be different

The advantage of using this interim filesystem is that disks built

under POS made be read under UNIX and vice versa. Also the filesystem is the same as that for SPICE if we need to run any of CMUs software. However, the major problems with it are the lack of Inodes and the inability to define links. Only system programs such as disk checkers should read Inodes directly and the plan is to use the ones written for POS (scavenger), user programs should not be aware that they are not there. Links are a problem. The reason that they are not included in the interim filesystem is that they do not work as defined in UNIX across partitions or across networks. One way out of this problem would be to support symbolic links which would work across partitions and networks. The only disadvantage to symbolic links is that the file being linked to is not protected from being deleted by the original owner.

The lack of protection in the filesystem is not too much of a problem as the PERQ is a single user machine. However, if CMUs BUTLER becomes a reality then protection would be more of an issue.

The final SPICE filesystem will support both links and protection and should be the file system we run with UNIX.

The difference in run-file formats should not affect any user, the only programs which will be affected are symbolic debuggers.