4 may have to be written out (if it has been altered) before the
move is performed.

The I-O Processor interacts with three different priority inter-
rupt levels, in addition to IOT interpretation by the Dispatcher
on interrupt level 16. All data transfers take place via the
Data Channel, which is connected to interrupt level 1. The Fast-
rand-drum controller and the magnetic-tape controller are con-
nected to interrupt level 4, and various table-manipulation rou-
tines are started by interrupt level 15. Driving the I-O Pro-
cessor through several interrupt levels instead of one makes the
I-O Processor more complicated but allows its functions which are
not time-dependent to be interrupted by other system functions
which are time-dependent.

Perhaps the easiest way to see the interrelationship of the
various interrupt levels is to follow a user through the I-O
Processor. When the user program's Fastrand IOT is trapped, the
Dispatcher branches to one of a number of I-O Processor routines
which interpret the IOT and construct two control words; these
specify which of the four basic operations the user requires and
the address of the desired quarter-track, if applicable. The
control words, together with a pointer to the user program's
queue counter (in the Swapper area of Executive memory), are then
entered in an I-O Processor queue of user programs waiting for
the Fastrand. The user program's status is set to "IOP hung"
and the Swapper is alerted to conduct an evaluation. If the
Fastrand is not being used, the IOT routine generates an interrupt
on level 4 (by means of a coded instruction) before debreaking
(see second following paragraph); usually the Fastrand is already
in use and debreaking on interrupt level 16 occurs immediately.