Scheduling:

Thread

Priority levels

<mark>Multilevel feedback Queues</mark>

I/O

Dev 1

CMD	STATUS	IN	OUT
WRITE	1		'H'
R1	R2	R3	R4
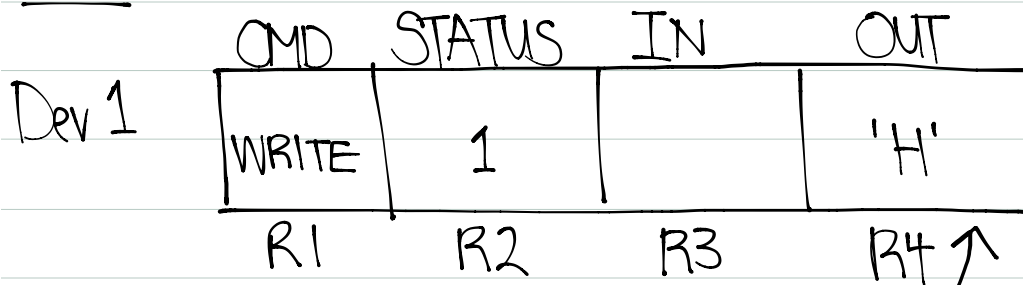
IN R2 DEV1, R2
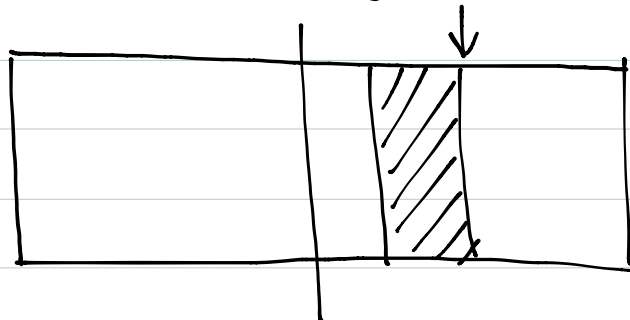
char * status = 0xbfe00004;
char * cmd = 0xbfe00000;
char * out = 0xbfe0000c;

0x8000 0000

x = *status
*out = 'H'
*cmd = WRITE

Direct Memory Access

- device can directly access memory
- CPU starts transfer, doesn't handle it.

Applications and Devices
- ioctl -

Prevent user apps from crashing kernel:

```
rc = write (fd, buf, two gigabytes)
x = kmalloc (size)
if (x==0) {
  ENOMEM, ERNVAL
}
```
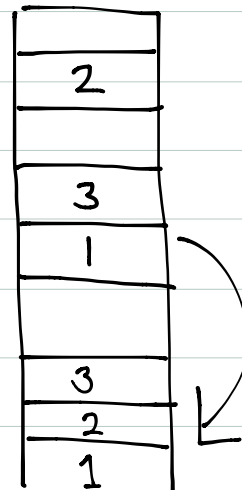
use kbuf[size]

get blk#, #block, <u>addr</u> ⟵ physical address because the controller
doesn't have a MMU

put addr, blck#, #blocks

HDD:
- more data throughput for data on the outside track
- cyclinder structure:
  ↳ select cyclinder, head number, and then sector

Reading from multiple heads:
↳ Tivo - had read and write arm that are synchronized