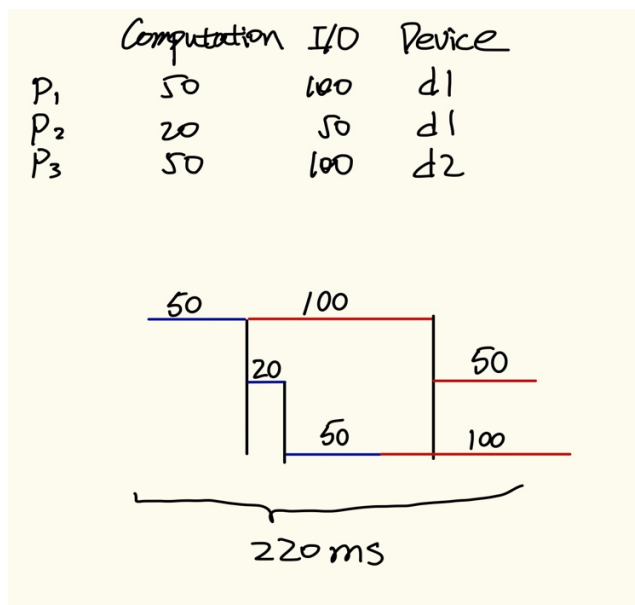


1. An interrupt transfers control to one process to another. Allows multiple processes to occur simultaneously by allowing transfer of control between system processes and I/O. A software-generated interrupt is called a trap. A trap can intentionally be caused by a user program, which the purpose would be catching specific errors.
2. There are two separate modes of operation in dual mode CPU, one is User Mode and the other is Kernel Mode. The two models will also work differently and have different functions, so that we have to distinguish between two modes. The OS is loaded and then user process is started in user mode. When an interrupt occurs, hardware switches to kernel mode. These two differing modes allow transfer control from user to kernel to fulfill the request.
3.
  - a. Set value of timer
  - c. Clear memory
  - e. Turn off interrupts
  - f. Put the CPU in kernel mode
  - g. Access I/O device
4. for every 10 us, 100 CPU cycles are required.  
 We have to find out the CPU cycles needed to transfer data.  
 Number of CPU cycles in one second:  $(100/10) * 10^6 = 10^7$   
 CPU cycles for transfer per second / total CPU cycles per second = 0.01  
 ANSWER: 1%
- 5.



ANSWER: 220 ms

6. The interrupt driven I/O does not use CPU, the transfers data one byte at a time, which is not efficient. DMA controller tells the device controller to transfer a block

of data directly between its buffer storage and memory without CPU intervention. During the data transfer, the CPU can do other work.

7.

- (1) Pass the parameters in registers
- (2) Parameters are stored in a block in memory, and then the address of block is passed as a parameter to a register.
- (3) Push the required parameters on to the stack, then they will be picked by OS by popping them from the stack.