Assigment

9.5 Suppose you wish to send a block of data to a tape drive for storage using DMA. What information must be sent to the tape controller before the DMA transfer can take place?

1. The location of the data which were stored in the memory
2. The location of the data which will be sent in the type
3. The size of block data
4. The direction of transfer, read or write
5. When, exactly, to initiate the transfer

9.7 What is polling used for? What are the disadvantages of polling? What is a better way to perform the same job?

Polling is a method which can be used in I/O programming. It can send out requests to I/O devices for determining the status of the device. The disadvantages of polling are that polling is a continuous effort that requires dedicated a portion of its time to this means that it is losing valuable times in performing more critical functions. The better way to perform the same job is a better way to manage I/O requests. For example, using Direct Memory Access (DMA) Programming Techniques. DMA is one of the most basic hardware techniques for transferring memory-based data between the central processor and a particular device. Computer systems use a DMA controller which is an intermediate device that handles the memory transfer, allowing the CPU to do other things.

Chapter 9 Calculation Exercise ”If my CPU runs at 4.0GHz, and on average takes 10 clock cycles to complete an instruction, how many instructions will be completed in the time it takes to type "MY CPU IS RUNNING NOW"? Assume it takes 5 seconds to type the message. Show your work and how you arrived at the solution”.

Sol: 1/4GHZ = 0.25ns for 1 clock cycle;
Since 10 clock cycle to complete an instruction, 10 * 0.25ns = 2.5ns for an instruction;
The number of instructions will be completed in 5 seconds: 5s/2.5ns = $2 * 10^9$ instructions.