HW5
CSc 137
(15 points)

7.10 Consider a 32-bit data bus SDRAM. Given that the clock frequency of the bus is 200MHz, what is the peak memory bandwidth in megabyte per second (MBs)? **(5 pts)**

Clock Frequency = 200MHz With of Data Bus = 32-Bit Data Bus

Bandwidth = Bus Frequency · With of Data Bus

= 200MHz · 32 = 6400Mbits/second

* 8Bits in a Byte *

= 6400/8 = 800Megabytes per second

7.11 Consider a 64-bit data bus SDRAM. Given that the clock frequency of the bus is 200MHz, what is the peak memory bandwidth in megabyte per second (MBs)? **(5 pts)**

Clock Frequency = 200MHz With of Data Bus = 64-Bit Data Bus

Bandwidth = Bus Frequency · With of Data Bus

= 200MHz · 64 = 12800Mbits/second

=12800/8 = 1600 Megabytes per second

* 8Bits in a Byte *

7.12 Consider a 32-bit data bus DDR SDRAM. Given that the clock frequency of the bus is 200MHz, what is the peak memory bandwidth in megabyte per second (MBs)? **(5 pts)**

Clock Frequency = 200MHz With of Data Bus = 32-Bit Data Bus = 4 Bytes (1Byte = 8 Bits)

Peak Memory Bandwidth = Clock Frequency · With of Data Bus
= 200MHz · 4 Bytes
= 800Megabytes per second

Recall: Bandwidth of Double Data Rate (DDR) SDRAM has double the bandwith of SDRAM at the same frequency

Peak Memory Bandwidth of DDR SDRAM = Peak Memory Bandwidth of SDRAM · 2
= 800MBs · 2
= 1600MBs