

CIS 240 Homework Exercise 4A
(CNET 220 Optional)

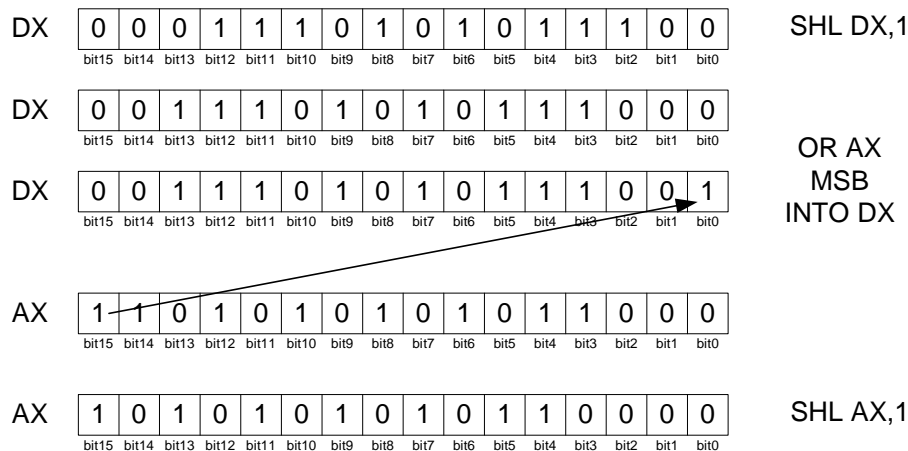
NAME

Normalizing 32 bits of Fractional Number

Create a program that will normalize the contents of DX and AX registers after a division or multiplication that stores a 32bit result. For your program just normalize whatever is stored in the DX and AX register (therefore, you can initialize them using the register command before running your program). The DX register stores the 16 MSB's and AX stores the 16 LSB's

The program should left shift the contents of both registers until the DX registers most significant 1 state bit is in it's MSB (bit 15) position. If the DX register doesn't have any 1 state bits then the AX registers most significant 1 state bit will have to be shifted all the way to the DX register MSB (bit 15) position. If there is no 1 state bits in either the DX or AX register then no shifting is needed and the program should stop.

The shifting process will entail left shifting the contents of both DX and AX registers until the first 1 bit is detected in the MSB (bit 15) position of the DX register. The DX register must be left shifted first, then before left shifting the AX register, its MSB (bit 15) position bit must be Ored into the LSB (bit 0) position of the DX register.



The shifting process stops when the MSB (bit 15) position of the DX register contains a 1. When the normalization is complete store the number of shifts in the CL register.

A loop will be necessary that breaks when the MSB is in position. The TEST instruction can be used to test if the MSB has a one as follows

TEST DX, 8000

JE DONE_ADDRESS

;note in debug these are offset addresses

JMP LOOP_TOP_ADDRESS

Attach code instructions,

Instructor Verification of operation _____