// Unsgned Mantissa and Signed Exponent

START: LXI H,2000 // Initializing HL Register Pair

MOV B,M

INX H

XRA A // This is used to initialize the C register to zero in the next step

MOV C,A // The C register will be used to accumulate the result of the multiplication

LOOP: ADD M // This is equivalent to multiplying B and the value at 2001H, and adding the result to A

JNC SKIP // This instruction jumps to the SKIP label if there is no carry after the addition in the previous step

INR C // This instruction increments the C register if there was a carry in the previous step

SKIP: DCR B // This instruction decrements the B register, which is the number of times the LOOP needs to be executed

JNZ LOOP

MOV B,C

STC

CMC

MOV A,B

RAL // Representing the mantissa in 1.7 Format

MOV B,A // result is stored in reg B

MVI C,00

EXPONENT: INX H // HL = 2002

PUSH H

MOV A,M

ADI 00 // Checking if exponent is negative

JM 1COMP

JP NEXTEXPO

1COMP: CMA

ADI 01

ADI F8

MOV M,A

NEXTEXPO: INX H

MOV A,M

ADI 00 // Checking if exponent is negative

JM 2COMP

JP SUMMING

2COMP: CMA

ADI 01

ADI F8

SUMMING:

POP H

ADD M

ADI 00 // ADDing if SUM is negative

JM SUMCOMP

MOV C,A

MVI A,00

HLT

SUMCOMP: CMA

ADI 01

ADI F8

MOV C,A

MVI A,00

HLT

# ORG 2000H

# DB 10H,60H,FAH,FBH