; Assignment1\_gebreb1.asm

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; A program that performs a multiplication of a 16bit multiplicand with

; an 8bit multiplier with out using a mul command in AVR.

Start:

.SET variable = 0x443d

ldi r24, 0x3d ; load 0x3d,the two lower bytes of the multiplicand, in r24

ldi r25, 0x44 ; load 0x44, the two upper bytes of the multiplicand, in r25

ldi r22, 0x2c ; load 0x2c, the multiplier, in r22

ldi r18,0x0 ; initialize r18 = 0

ldi r19,0x0 ; initialize r19 = 0

ldi r20,0x0 ; initialize r20 = 0

ldi r26,0x0 ; initialize r26 =0

mov r28, r22; move r22 in to r28

loop:

add r18, r24 ; r18 = r18+r24

adc r19, r25 ;r19 = r19+r25

adc r20, r26 ;r20 = r20+r26

dec r28 ; r28 = r28-1

cpi r28,0 ;compare the value in r28 with zero.

brne loop ; branch to loop if the above value is not equal to zero

end:

jmp end

**Verifying using Mul instruction**

.equ m1=0X4443d

Start:

ldi r25, HIGH(m1)

ldi r24, LOW(m1)

ldi r22, 0x2c

mul r22, r25

mov r20, r0

mul r22, r24

mov r24, r0

end: