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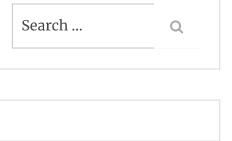
September 2, 2017 - 8051

## 8051 16 bit multiplication Program - Codes Explorer



# 8051 16 Bit Multiplication ALP <u>ALGORITHM:</u>

- 1. Start.
- 2. Load the MSB's of Data in two different registers.
- 3. Load the LSB's of Data in other two different registers.
- 4. Successive multiplication is carried out.
- 5. The product obtained in the registers.
- 6. The output is stored in the registers.
- 7. End.



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For example if we are trying to multiply two 16 bit numbers as below. We have divided 16 bit numbers into two 8 bit numbers

MSB1 ← AB CD → LSB1
MSB2 ← x EF GH → LSB2

Basically, we are multiplying FFFF & EF9D.

But in this program, AB = FF

CD = FF

EF = EF

GH = 9D

After we execute the above Program, the result will be stored in R7-R6-R5-R4.

ORG 0000H

MOV R0,#0FFH; MSB1

MOV R1,#0EFH; MSB2

MOV R2,#0FFH; LSB1

MOV R3,#9DH; LSB2

MOV A,R2

MOV B,R3

MUL AB

MOV R4,A

MOV R5, B

MOV A, R2

MOV B,R1

MUL AB

MOV R6,B

ADDC A,R5

MOV R5,A

MOV A,R1

MOV B,R4

MUL AB

ADDC A,R5

MOV R5, A

Introduction to PythonProgramming

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MOV A, B

ADDC A, R6

MOV R6, A

MOV A, R1

MOV B, R2

MUL AB

ADDC A, R6

MOV R6, A

MOV A, B

ADDC A, #00H

MOV R7, A

END

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