

8bit multiplication with 16bit product

This code aims to be fast, without using tables.

```
; mul 8x8 16 bit result for when you can't afford big tables
; by djmips
;
; inputs are mul1 and mul2 and should be zero page.
; A should be zero entering but if you want it will factor in as 1/2 A added
to the result.
;
; output is 16 bit in A : mul1 (A is high byte)
;
; length = 65 bytes
; total cycles worst case = 113
; total cycles best case = 97
; avg = 105
; inner loop credits supercat
```

MUL:

```
    dec mul2    ; decrement mul2 because we will be adding with carry set
for speed (an extra one)
    ror mul1
    bcc b1
    adc mul2
b1:  ror
    ror mul1
    bcc b2
    adc mul2
b2:  ror
    ror mul1
    bcc b3
    adc mul2
b3:  ror
    ror mul1
    bcc b4
    adc mul2
b4:  ror
    ror mul1
    bcc b5
    adc mul2
b5:  ror
    ror mul1
    bcc b6
    adc mul2
b6:  ror
    ror mul1
    bcc b7
    adc mul2
```

```
b7:  ror
      ror mul1
      bcc b8
      adc mul2
b8:  ror
      ror mul1
      inc mul2
      rts
```

From: <https://codebase64.org/> - **Codebase 64 wiki**

Permanent link: https://codebase64.org/doku.php?id=base:8bit_multiplication_16bit_product_fast_no_tables

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