



# INTEROFFICE MEMORANDUM

M-1096

DATE January 19, 1961

SUBJECT MULTIPLY SUBROUTINE<sup>1</sup>

TO PDP Distribution List

FROM Computer Division

,MULTIPLY SUBROUTINE  
 ,  
 ,  
 ,  
 , if mpy is called the answer returned is a sign and 34 bits and a sign  
 , in the AC-IO.  
 , if i-mpy is called the answer is a sign and 17 bits in the AC - the  
 , bits are the low 17 of the product

lac one-factor  
 jda mpy or i-mpy  
 lac other-factor  
 R,

ext i-mpy

org i-mpy  
 loc  
 dap i-mpy & 2  
 xct

jda mpy  
 idx i-mpy & 2

*loc i-mpy*

rir s1  
 rcr s9  
 rcr s9  
 jmp \* i-mpy & 2

loc, temporary storage

ext mpy

0  
 dap mpy & 7  
 lac mpy

spa  
 cma  
 rcr s9  
 rcr s9

xct  
 spa  
 cma  
 dac mpy - 1  
 cla  
 mus mpy - 1  
 mus mpy - 1  
 mus mpy - 1

```
mus mpy - 1  
mus mpy - 1  
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mus mpy - 1  
mus mpy - 1  
mus mpy - 1  
  
dac mpy - 1  
xct mpy & 7  
xor mpy  
sma  
jmp mpy & 52  
lac mpy - 1  
cma  
rcr s9  
rcr s9  
cma  
rcr s9  
rcr s9  
dac mpy - 1  
idx mpy & 7  
lac mpy - 1  
jmp * mpy & 7  
jmp end
```

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## 1. Acknowledgment

The above library subroutine has been written for the PDP-1 by Bolt, Beranek and Newman, Cambridge, Massachusetts.