

**dec****INTEROFFICE  
MEMORANDUM**

M-1097

DATE      January 19, 1961

SUBJECT DIVIDE SUBROUTINE<sup>1</sup>

TO      PDP Distribution List

FROM      Computer Division

## ,FRACTIONAL AND INTEGER DIVIDE ROUTINE

,for fractional divide the dividend is a signed 34 bit number  
,in the AC and IO - bit 17 in the IO is significant

,      lac (HI order part of dividend)

,      lio (LO order part of dividend)

,      jda dvd

,      lac (divisor)

,      R, divisor zero or equal or less than HI of dividend

,for integer divide dividend is a signed 17 bit number in the IO

,      lac (dividend)

,      jda i-dvd

,      lac (divisor)

,      R, divisor equals zero

,      R &amp; 1, quotient in AC, remainder in IO

,  
ext i-dvd      org i-dvd

loc      0000

dap dvd &amp; 2

lac i-dvd

scr s9

scr s8

dac dvd

jmp dvd &amp; 2

0

dap dvd &amp; 2

xct

spa

cma

dac i-dvd

lac dvd

sma

jmp dvd &amp; 17

cma

rrr s9

rrr s9

ext dvd

cma  
rcr s9  
rcr s9  
sub i-dvd  
sma  
jmp dvd & 80  
dis i-dvd  
add i-dvd  
sar s1  
dio i-dvd  
lio dvd  
spi  
cma  
dac dvd  
xct dvd & 2  
xor dvd  
rcr s9  
rcr s9  
idx dvd & 2  
idx dvd & 2  
lac i-dvd  
spi  
cma  
lio dvd  
jmp \* dvd & 2  
jmp end

#### 1. Acknowledgment

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