DATE   January 19, 1961

SUBJECT   DIVIDE SUBROUTINE[1]

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 & 1, quotient in AC, remainder in IO
        ,
ext i-dvd               org i-dvd
loc                     0000
                        dap dvd & 2
                        lac i-dvd
                        scr s9
                        scr s8
                        dac dvd
                        jmp dvd & 2
ext dvd                 0
                        dap dvd & 2
                        xct
                        spa
                        cma
                        dac i-dvd
                        lac dvd
                        sma
                        jmp dvd & 17
                        cma
                        rcr s9
                        rcr s9
```

```
            cma
            rcr s9
            rcr s9
            sub i-dvd
            sma
            jmp dvd & 60
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            dis i-dvd
            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.