NAME atof -- ascii to floating

SYNOPSIS jsr r5,atof; subr

DESCRIPTION atof will convert an ascii stream to a floating number returned in fr0. The subroutine subr is called on r5 for each character of the ascii stream. subr should return the character in r0. The first character not used in the conversion is left in r0. The floating point simulation should be active in either floating or double mode, but in single precision integer mode.

FILES kept in /etc/liba.a

SEE ALSO fptrap

DIAGNOSTICS

BUGS The subroutine subr should not disturb any registers.

OWNER ken
NAME
atoi -- ascii to integer

SYNOPSIS
jsr r5,atoi; subr

DESCRIPTION
atoi will convert an ascii stream to a binary number returned in mq. The subroutine subr is called on r5 for each character of the ascii stream. subr should return the character in r0. The first character not used in the conversion is left in r0.

FILES
kept in /etc/liba.a

SEE ALSO

DIAGNOSTICS

BUGS
The subroutine subr should not disturb any registers.

OWNER
ken
NAME  ctime -- convert date and time to ASCII

SYNOPSIS  (move time to AC-MQ)
           mov $buffer,r0
           jsr pc,ctime

DESCRIPTION  The buffer is 15 characters long. The time has the format
              Oct 9 17:32:24

              The input time is in the AC and MQ registers in the form
              returned by sys time.

FILES  kept in /etc/liba.a

SEE ALSO  ptime, to print time; sys time

DIAGNOSTICS

BUGS  The time is not taken modulo 1 year. (Jan 1 comes out Dec 32.)
      Also, the clock period is only a couple of years.

OWNER  dmr
NAME         exp -- exponential function
SYNOPSIS     jsr     r5,exp
DESCRIPTION  The exponential of fr0 is returned in fr0. The floating point
simulation should be active in either floating or double mode, but in single precision integer mode.
FILES        kept in /etc/liba.a
SEE ALSO     fptrap
DIAGNOSTICS
BUGS         Large arguments will cause an overflow fault from the floating
             point simulator.
OWNER        ken
NAME       fptrap -- floating point simulator
SYNOPSIS    sys  33.; fptrap
DESCRIPTION  fptrap is a program designed to pick up illegal instruction in
order to simulate a sub-set of the 11/45 floating point
hardware.
FILES       kept in /etc/liba.a
SEE ALSO    as, PDP-11/45 manual
DIAGNOSTICS none, hardware gives no diagnostics.
BUGS        The simulation, if unsuccessful for any reason gives an IOT
fault from inside the simulator. This should be handled
better.
OWNER       ken, dmr
NAME  ftoa -- floating to ascii conversion

SYNOPSIS  jsr r5,ftoa; subr

DESCRIPTION  ftoa will convert the floating point number in fr0 into ascii in the form [-]d.ddddddde[-]dd*. The floating point simulator should be active in either floating or double mode, but in single integer mode. For each character generated by ftoa, the subroutine subr is called on register r5 with the character in r0.

FILES  kept in /etc/liba.a

SEE ALSO  fptrap

DIAGNOSTICS

BUGS  The subroutine subr should not disturb any registers.

OWNER  ken
NAME
getw, getc, fopen -- buffered input

SYNOPSIS
mov   $filename , r0
jsr   r5,fopen; iobuf

jsr r5,getc; iobuf
(character in r0)

jsr   r5,getw; iobuf
(word in r0)

DESCRIPTION
These routines are used to provide a buffered input facility. iobuf is the address of a 134(10) byte buffer area whose contents are maintained by these routines. Its format is:

ioptr:
   . = . + 2   / file descriptor
   . = . + 2   / characters left in buffer
   . = . + 2   / ptr to next character
   . = . + 28  / the buffer

fopen should be called initially to open the file. On return, the error bit (c-bit) is set if the open failed. If fopen is never called, get will read from the standard input file.

getc returns the .next byte from the file in r0. The error bit is set on end of file or a read error.

getw returns the next word in r0. getc and getw may be used alternately; there are no odd/even problems.

iobuf must be provided by the user; it must be on a word boundary.

FILES
kept in /etc/liba.a

SEE ALSO
sys open, sys read; putc, putw, fcreat

DIAGNOSTICS
c-bit set on EOF or error

BUGS
for greater speed, the buffer should be 512 bytes long. Unfortunately, this will cause several existing programs to stop working.

OWNER
dmr
NAME    itoa -- integer to ascii conversion
SYNOPSIS jsr     r5,itoa; subr
DESCRIPTION itoa will convert the number in r0 into ascii decimal possibly preceded by a — sign. For each character generated by itoa, the subroutine subr is called on register r5 with the character in r0.
FILES    kept in /etc/liba.a
SEE ALSO
DIAGNOSTICS
BUGS     The subroutine subr should not disturb any registers.
OWNER    ken
NAME         log -- logarithm base e

SYNOPSIS     jsr       r5, log

DESCRIPTION  The logarithm base e of fr0 is returned in fr0. The floating
              point simulation should be active in either floating or double
              mode, but in single precision integer mode.

FILES        kept in /etc/liba.a

SEE ALSO     fptrap

DIAGNOSTICS  The error bit (c-bit) is set if the input argument is less than
              or equal to zero.

BUGS

OWNER        ken
**NAME**
mesg -- write message on typewriter

**SYNOPSIS**
jsr r5,mesg; <Now is the time\0>; .even

**DESCRIPTION**
mesg writes the string immediately following its call onto the standard output file. The string is terminated by a 0 byte.

**FILES**
kept in /etc/liba.a, standard output file

**SEE ALSO**

**DIAGNOSTICS**

**BUGS**

**OWNER**
ken, dmr
NAME ptime -- print date and time

SYNOPSIS (move time to ac-mq)
mov file,r0
jsr pc,ptime

DESCRIPTION ptime prints the date and time in the form

    Oct 9 17:20:33

on the file whose file descriptor is in r0. The string is 15
characters long. The time to be printed is placed in the AC
and MQ registers in the form returned by sys time.

FILES kept in /etc/liba.a

SEE ALSO sys time, ctime (used to do the conversion)

DIAGNOSTICS

BUGS see ctime

OWNER dmr, ken
NAME  putc, putw, fcreat, flush -- buffered output

SYNOPSIS  may $filename , r0
          jsr r5,fcreat; iobuf
          (get byte in r0)
          jsr r5,putc; iobuf
          (get word in r0)
          jsr r5,putw; iobuf
          jsr r5,flush; iobuf

DESCRIPTION  fcreat creates the given file (mode 17) and sets up the buffer
             iobuf (size 134(10) bytes); putc and putw write a byte or word
             respectively onto the file; flush forces the contents of the
             buffer to be written, but does not close the file. The format
             of the buffer is:

             iobuf:  .=.+2   / file descriptor
                     .=.+2   / characters unused in buffer
                     .=.+ 2   / ptr to next free character
                     .=.+128. / buffer

             fcreat sets the error bit (c-bit) if the file creation failed;
             none of the other routines return error information.

             Before terminating, a program should call flush to force out
             the last of the output.

             The user must supply iobuf, which should begin on a word
             boundary.

FILES  kept in/etc/liba.a

SEE ALSO  sys creat; sys write; getc, getw, fopen

DIAGNOSTICS  error bit possible on fcreat call

BUGS  buffers should be changed to 512 bytes.

OWNER  dmr
NAME
sin, cos -- sine cosine

SYNOPSIS
jsr r5,sin (cos)

DESCRIPTION
The sine (cosine) of fr0 (radians) is returned in fr0. The floating point simulation should be active in either floating or double mode, but in single precision integer mode. All floating registers are used.

FILES
kept in /etc/liba.a

SEE ALSO
fptrap

DIAGNOSTICS

BUGS
Size of the argument should be checked to make sure the result is meaningful

OWNER
ken, dmr
NAME switch -- switch on value

SYNOPSIS (switch value in r0)
    jsr r5,switch; swtab
    (not-found return)

    swtab: val1; lab1;
    valn; labn
    ..; 0

DESCRIPTION switch compares the value of r0 against each of the vali; if a
    match is found, control is transferred to the corresponding
    lab. (after popping the stack once). If no match has been found
    by the time a null labi occurs, switch returns.

FILES kept in /etc/liba.a

SEE ALSO

DIAGNOSTICS

BUGS

OWNER ken, dmr