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 lOT
                        fault from inside the simulator. This should be handeled
                        better.
OWNER   ken, dmr

NAME   ftoa -- floating to ascii conversion

SYNOPSIS   jsr   r5,ftoa; subr

DESCRIPTION   ftoa will convert the floatin9 point number in fr0 into ascii
                  in the form [-]d.dddddddde[-]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 <u>subr</u> is called on register r5 with the character in
                  r0.

FILES   kept in /etc/liba.a

SEE ALSO   fptrap

DIAGNOSTICS

BUGS   The subroutine <u>subr</u> 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 maintamed 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   <u>mesg</u> 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
                    iohuf (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 iohuf, 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