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.dddddddde[-]d*d.
              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 regis-

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
      .=,+128 / 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

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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/lita.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
mov $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 val_i; if a match is found, control is transferred to the corresponding lab_i (after popping the stack once). If no match has been found by the time a null lab_i occurs, switch returns.

FILES
kept in /etc/liba.a

SEE ALSO
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DIAGNOSTICS
--

BUGS
--

OWNER
ken, dmr