


```

MM      MM      TTTTTTTTTT  HH      HH      SSSSSSSS  GGGGGGGG  NN      NN
MM      MM      TTTTTTTTTT  HH      HH      SSSSSSSS  GGGGGGGG  NN      NN
MMMM    MMMM    TT          HH      HH      SS          GG          NN      NN
MMMM    MMMM    TT          HH      HH      SS          GG          NN      NN
MM  MM  MM      TT          HH      HH      SS          GG          NNNN    NN
MM  MM  MM      TT          HH      HH      SS          GG          NNNN    NN
MM      MM      TT          HHHHHHHHHH  SSSSSS  GG          GG          NN  NN  NN
MM      MM      TT          HHHHHHHHHH  SSSSSS  GG          GG          NN  NN  NN
MM      MM      TT          HH      HH      SS          GG  GGGGGG  NN  NNNN
MM      MM      TT          HH      HH      SS          GG  GGGGGG  NN  NNNN
MM      MM      TT          HH      HH      SS          GG          GG          NN      NN
MM      MM      TT          HH      HH      SS          GG          GG          NN      NN
MM      MM      TT          HH      HH      SSSSSSSS  GGGGGG  NN      NN
MM      MM      TT          HH      HH      SSSSSSSS  GGGGGG  NN      NN

```

```

LL      IIIIII  SSSSSSSS
LL      IIIIII  SSSSSSSS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SSSSSS
LL      II      SSSSSS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SS
LLLLLLLLLL  IIIIII  SSSSSSSS
LLLLLLLLLL  IIIIII  SSSSSSSS

```

(2)	52
(3)	83
(4)	140

DECLARATIONS
MTH\$SGN - BASIC SGN function
MTH\$SGN_R1 - JSB entry point

MT
SY
EX
MT
NE
NE

PS
-
-

PH
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Co
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Sy
Pa
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PS
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MA

```

0000 1      .TITLE MTH$SGN - BASIC SGN function
0000 2      .IDENT /1-006/ ; File: MTHSGN.MAR
0000 3
0000 4
0000 5 :*****
0000 6 :*
0000 7 :* COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
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0000 23 :* SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
0000 24 :*
0000 25 :*
0000 26 :*****
0000 27 :
0000 28 :
0000 29 :++
0000 30 : FACILITY: Math Library
0000 31 :
0000 32 : ABSTRACT:
0000 33 :
0000 34 : This module returns a 1 if the input is positive, a -1 if the
0000 35 : input is negative, and a 0 if the input is 0.
0000 36 :
0000 37 : ENVIRONMENT: User Mode, AST Reentrant
0000 38 :
0000 39 :--
0000 40 : AUTHOR: R. Will,          CREATION DATE: 30-Nov-78
0000 41 :
0000 42 : MODIFIED BY:
0000 43 :
0000 44 : VERSION 01
0000 45 : 1-01 - Original
0000 46 : 1-002 - Make edit number three digits in length. JBS 07-DEC-78
0000 47 : 1-003 - Add "-" to the PSECT directive. JBS 22-DEC-78
0000 48 : 1-004 - Clean-up. RW 11-Jul-79
0000 49 : 1-005 - Add a JSB entry point. JBS 16-AUG-1979
0000 50 : 1-006 - Correct a typo in edit 005. JBS 20-AUG-1979

```

```
0000 52      .SBTTL  DECLARATIONS
0000 53      :
0000 54      : INCLUDE FILES:
0000 55      :
0000 56      :
0000 57      :
0000 58      : EXTERNAL DECLARATIONS:
0000 59      :
0000 60      .DSABL  GBL                      ; Prevent undeclared
0000 61      :                                           ; symbols from being
0000 62      :                                           ; automatically global.
0000 63      :
0000 64      :
0000 65      : MACROS:
0000 66      :
0000 67      :
0000 68      :
0000 69      : EQUATED SYMBOLS:
0000 70      :
00000004 0000 71      input_addr = 4
0000 72      :
0000 73      : OWN STORAGE:
0000 74      :
0000 75      :
0000 76      :
0000 77      : PSECT DECLARATIONS:
0000 78      :
00000000 0000 79      .PSECT _MTH$CODE PIC, USR, CON, REL, LCL, SHR, -
0000 80      EXE, RD, NOWRT, LONG
0000 81
```

```

0000 83      .SBTTL MTH$SGN - BASIC SGN function
0000 84      :++
0000 85      FUNCTIONAL DESCRIPTION:
0000 86      :
0000 87      This routine returns a 1 if the input is positive, a -1 if the
0000 88      input is negative, and a 0 if the input is 0.
0000 89      :
0000 90      CALLING SEQUENCE:
0000 91      :
0000 92      CALL sign.wl.v = MTH$SGN (x.rf.r)
0000 93      note: this works for f and d data types because for both f and d
0000 94      the sign and exponent are in the same place, and all we are interested
0000 95      in is the sign and the value 0. The value zero is represented in both
0000 96      f and d as a 0 sign and a 0 exponent.
0000 97      :
0000 98      INPUT PARAMETERS:
0000 99      :
00000004 0000 100      input_addr = 4
0000 101      :
0000 102      IMPLICIT INPUTS:
0000 103      :
0000 104      NONE
0000 105      :
0000 106      OUTPUT PARAMETERS:
0000 107      :
0000 108      NONE
0000 109      :
0000 110      IMPLICIT OUTPUTS:
0000 111      :
0000 112      NONE
0000 113      :
0000 114      FUNCTION VALUE:
0000 115      COMPLETION CODES:
0000 116      :
0000 117      a 1, 0, or -1 depending on the input sign
0000 118      :
0000 119      SIDE EFFECTS:
0000 120      :
0000 121      NONE
0000 122      :
0000 123      --
0000 124      :
4000 0000 125      .ENTRY MTH$SGN , ^M<IV>          ; Entry point
04 BC 53 0002 126      TSTF @input_addr(AP)      ; compare the input parameter to 0
05 14 0005 127      BGTR 1$                      ; positive
07 19 0007 128      BLSS 2$                      ; negative
50 D4 0009 129      CLRL R0                      ; input was 0
04 04 000B 130      RET
50 01 D0 000C 131      MOVL #1,R0                ; positive
04 04 000F 132      RET
50 01 CE 0010 133      MNEGL #1,R0               ; negative
04 04 0013 134      RET

```

```

0014 140      .SBTTL MTH$SGN_R1 - JSB entry point
0014 141      :++
0014 142      : FUNCTIONAL DESCRIPTION:
0014 143      :
0014 144      : This routine returns a 1 if the input is positive, a -1 if the
0014 145      : input is negative, and a 0 if the input is 0.
0014 146      :
0014 147      : CALLING SEQUENCE:
0014 148      :
0014 149      : sign.wl.v = JSB MTH$SGN (x.rf.v)
0014 150      : note: this works for f and d data types because for both f and d
0014 151      : the sign and exponent are in the same place, and all we are interested
0014 152      : in is the sign and the value 0. The value zero is represented in both
0014 153      : f and d as a 0 sign and a 0 exponent.
0014 154      :
0014 155      : INPUT PARAMETERS:
0014 156      :
0014 157      : R0 contains the argument
0014 158      :
0014 159      : IMPLICIT INPUTS:
0014 160      :
0014 161      : NONE
0014 162      :
0014 163      : OUTPUT PARAMETERS:
0014 164      :
0014 165      : NONE
0014 166      :
0014 167      : IMPLICIT OUTPUTS:
0014 168      :
0014 169      : NONE
0014 170      :
0014 171      : FUNCTION VALUE:
0014 172      : COMPLETION CODES:
0014 173      :
0014 174      : a 1, 0, or -1 depending on the input sign
0014 175      :
0014 176      : SIDE EFFECTS:
0014 177      :
0014 178      : NONE
0014 179      :--
0014 180      :
50 53 0014 181 MTH$SGN_R1:: ; R0 has argument
05 14 0014 182 TSTF R0 ; compare the input parameter to 0
07 19 0016 183 BGTR 1$ ; positive
0018 184 BLSS 2$ ; negative
001A 185
50 D4 001A 186 CLRL R0 ; input was 0
05 05 001C 187 RSB
001D 188
50 01 D0 001D 189 1$: MOVL #1,R0 ; positive
05 05 0020 190 RSB
0021 191
50 01 CE 0021 192 2$: MNEGL #1,R0 ; negative
05 05 0024 193 RSB
0025 194
0025 195 .END

```

MTH\$SGN
Symbol table

- BASIC SGN function

M 9

16-SEP-1984 01:48:30
6-SEP-1984 11:26:51

VAX/VMS Macro V04-00
[MTHRTL.SRC]MTHSGN.MAR;1

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(4)

INPUT_ADDR = 00000004
MTH\$SGN 00000000 RG 01
MTH\$SGN_R1 00000014 RG 01

+-----+
! Psect synopsis !
+-----+

PSECT name	Allocation	PSECT No.	Attributes											
ABS	00000000 (0.)	00 (0.)	NOPIC	USR	CON	ABS	LCL	NOSHR	NOEXE	NORD	NOWRT	NOVEC	BYTE	
_MTH\$CODE	00000025 (37.)	01 (1.)	PIC	USR	CON	REL	LCL	SHR	EXE	RD	NOWRT	NOVEC	LONG	

+-----+
! Performance indicators !
+-----+

Phase	Page faults	CPU Time	Elapsed Time
Initialization	32	00:00:00.10	00:00:00.54
Command processing	135	00:00:00.48	00:00:03.29
Pass 1	66	00:00:00.48	00:00:02.18
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	46	00:00:00.42	00:00:02.13
Symbol table output	2	00:00:00.01	00:00:00.01
Psect synopsis output	2	00:00:00.02	00:00:00.02
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	285	00:00:01.51	00:00:08.19

The working set limit was 750 pages.
1970 bytes (4 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 3 non-local and 4 local symbols.
195 source lines were read in Pass 1, producing 11 object records in Pass 2.
0 pages of virtual memory were used to define 0 macros.

+-----+
! Macro library statistics !
+-----+

Macro library name	Macros defined
_\$255\$DUA28:[SYSLIB]STARLET.MLB;2	0

0 GETS were required to define 0 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS\$:MTHSGN/OBJ=OBJ\$:MTHSGN MSRC\$:MTHSGN/UPDATE=(ENH\$:MTHSGN)

