

MM	MM	TTTTTTTTTT	HH	HH	GGGGGGGG	FFFFFFFFFF	LL	000000	000000	RRRRRRRR	
MM	MM	TTTTTTTTTT	HH	HH	GGGGGGGG	FFFFFFFFFF	LL	000000	000000	RRRRRRRR	
MMMM	MMMM	TT	HH	HH	GG	FF	LL	00	00	RR	RR
MMMM	MMMM	TT	HH	HH	GG	FF	LL	00	00	RR	RR
MM	MM	TT	HH	HH	GG	FF	LL	00	00	RR	RR
MM	MM	TT	HH	HH	GG	FF	LL	00	00	RR	RR
MM	MM	TT	HHHHHHHHHH	HH	GG	FFFFFFFF	LL	00	00	RRRRRRRR	
MM	MM	TT	HHHHHHHHHH	HH	GG	FFFFFFFF	LL	00	00	RRRRRRRR	
MM	MM	TT	HH	HH	GG	GGGGGG	FF	00	00	RR	RR
MM	MM	TT	HH	HH	GG	GGGGGG	FF	00	00	RR	RR
MM	MM	TT	HH	HH	GG	GG	FF	00	00	RR	RR
MM	MM	TT	HH	HH	GG	GG	FF	00	00	RR	RR
MM	MM	TT	HH	HH	GG	GG	FF	00	00	RR	RR
MM	MM	TT	HH	HH	GG	GG	FF	00	00	RR	RR
MM	MM	TT	HH	HH	GG	GG	FF	00	00	RR	RR
MM	MM	TT	HH	HH	GGGGGG	GGGGGG	FFFFFFFF	000000	000000	RR	RR
MM	MM	TT	HH	HH	GGGGGG	GGGGGG	FFFFFFFF	000000	000000	RR	RR

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
LL	II		SS
LLLLLLLLLL	IIIIII	SSSSSSSS	
LLLLLLLLLL	IIIIII	SSSSSSSS	

(2) 48
(3) 78
(4) 136

DECLARATIONS
MTH\$GFLOOR - greatest integer G_floating routine
MTH\$GFLOOR_R3 - greatest integer G_floating routine

MT
SY

MT
MT
PS

PS
--
\$A
_P

PH
--
In
Co
Pa
Sy
Pa
Sy
Pa
Cr
As

TH
40
TH
18
8

Ma
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_1
98
TH
MA

```
0000 1 .TITLE MTH$GFLOOR - Greatest integer routine for G floating
0000 2 .IDENT /1-001/ ; File: MTHGFLOOR.MAR
0000 3
0000 4
0000 5 :*****
0000 6 :*
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0000 24 :*
0000 25 :*
0000 26 :*****
0000 27 :
0000 28 :
0000 29 :++
0000 30 : FACILITY: Math Library
0000 31 :
0000 32 : ABSTRACT:
0000 33 :
0000 34 : This routine finds the largest integer less than the input
0000 35 : value, i.e. it truncates toward negative infinity
0000 36 : for data type G_floatin.
0000 37 :
0000 38 : ENVIRONMENT: User Mode, AST Reentrant
0000 39 :
0000 40 : --
0000 41 : Author: John Sauter, Creation date: 27-JUL-1979
0000 42 :
0000 43 : MODIFIED BY:
0000 44 :
0000 45 : VERSION 00
0000 46 : 1-001 - Original, from MTH$DFLOOR.
```

```
0000 48 .SBTTL DECLARATIONS
0000 49 :
0000 50 : INCLUDE FILES:
0000 51 :
0000 52 :
0000 53 :
0000 54 : EXTERNAL DECLARATIONS:
0000 55 :
0000 56 .DSABL GBL ; Prevent undeclared
0000 57 ; symbols from being
0000 58 ; automatically global.
0000 59 :
0000 60 : MACROS:
0000 61 :
0000 62 :
0000 63 :
0000 64 : EQUATED SYMBOLS:
0000 65 :
0000 66 :
0000 67 :
0000 68 : OWN STORAGE:
0000 69 :
0000 70 :
0000 71 :
0000 72 : PSECT DECLARATIONS:
0000 73 :
00000000 74 .PSECT _MTH$CODE PIC, USR, CON, REL, LCL, SHR, -
0000 75 EXE, RD, NOWRT, LONG
0000 76
```

```

0000 78      .SBTTL  MTH$GFLOOR  - greatest integer G_floating routine
0000 79      :++
0000 80      : FUNCTIONAL DESCRIPTION:
0000 81      :
0000 82      :     This routine finds the floor by truncating, and then if the
0000 83      :     input value is negative and not an integer subtracting 1.
0000 84      :
0000 85      : CALLING SEQUENCE:
0000 86      :
0000 87      :     CALL result_int.wg.v = MTH$GFLOOR (input.rg.r)
0000 88      :
0000 89      : INPUT PARAMETERS:
0000 90      :
00000004 0000 91      :     input_addr = 4                                ; address of the G_floating number
0000 92      :                                                         ; to get the floor of
0000 93      :
0000 94      : IMPLICIT INPUTS:
0000 95      :
0000 96      :     NONE
0000 97      :
0000 98      : OUTPUT PARAMETERS:
0000 99      :
0000 100     :     NONE
0000 101     :
0000 102     : IMPLICIT OUTPUTS:
0000 103     :
0000 104     :     NONE
0000 105     :
0000 106     : FUNCTION VALUE:
0000 107     : COMPLETION CODES:
0000 108     :
0000 109     :     the G_floating value of the greatest integer
0000 110     :
0000 111     : SIDE EFFECTS:
0000 112     :
0000 113     :     NONE
0000 114     :
0000 115     :--
0000 116     :
0000 117     :.ENTRY  MTH$GFLOOR, ^M<R2, R3>                ; entry point
0002 118     :
52 52 08 50 04 BC 50FD 0002 119     MOVG   @input_addr(AP), R0                ; R0/R1 = input argument
0007 120     EMOVG  R0, #0, #1, R2, R2                ; R2/R3 = fraction_part (arg)
000E 121     SUBG2  R2, R0                            ; R0/R1 = integer_part (arg)
0012 122     :
0012 123     BGTR   40$                               ; if > 0, have correct answer
0014 124     :
0014 125     TSTG  R2                                ; look at fraction part
0017 126     BGEQ  40$                               ; if > 0 then 0 < input < 1 and
0019 127     :                                         ; we have the correct answer
0019 128     :                                         ; if = 0 then input was integer
0019 129     :                                         ; and we have correct answer
0019 130     :
0019 131     SUBG2  #1,R0                            ; subtract 1 from truncated
001D 132     :                                         ; negative non-integer
001D 133     :
001D 134     40$:  RET

```

```

001E 136      .SBTTL MTH$GFLOOR_R3 - greatest integer G_floating routine
001E 137      :++
001E 138      : FUNCTIONAL DESCRIPTION:
001E 139      :
001E 140      :     This is the JSB entry point to MTH$GFLOOR.
001E 141      :
001E 142      : CALLING SEQUENCE:
001E 143      :
001E 144      :     JSB result_int.wg.v = MTH$GFLOOR_R3 (input.rg.v)
001E 145      :
001E 146      : INPUT PARAMETERS:
001E 147      :
001E 148      :     R0 and R1 contain the input value
001E 149      :
001E 150      : IMPLICIT INPUTS:
001E 151      :
001E 152      :     NONE
001E 153      :
001E 154      : OUTPUT PARAMETERS:
001E 155      :
001E 156      :     NONE
001E 157      :
001E 158      : IMPLICIT OUTPUTS:
001E 159      :
001E 160      :     NONE
001E 161      :
001E 162      : FUNCTION VALUE:
001E 163      : COMPLETION CODES:
001E 164      :
001E 165      :     the G_floating value of the greatest integer
001E 166      :
001E 167      : SIDE EFFECTS:
001E 168      :
001E 169      :     NONE
001E 170      :
001E 171      :--
001E 172
001E 173 MTH$GFLOOR_R3::                                : entry point
001E 174
001E 175      EMOVG  R0, #0, #1, R2, R2                    : R2/R3 = fraction_part (arg)
52  52  08  00  50 54FD 0025 176      SUBG2  R2, R0                    : R0/R1 = integer_part (arg)
                    50  52 42FD
0029 177
                    09  14 0029 178      BGTR   40$                    : if > 0, have correct answer
002B 179
                    52 53FD 002B 180      TSTG   R2                    : look at fraction part
04  18 002E 181      BGEQ   40$                    : if > 0 then 0 < input < 1 and
0030 182      : we have the correct answer
0030 183      : if = 0 then input was integer
0030 184      : and we have correct answer
0030 185
                    50  08 42FD 0030 186      SUBG2  #1,R0                    : subtract 1 from truncated
0034 187      : negative non-integer
0034 188
                    05  0034 189 40$:  RSB
0035 190
0035 191      .END

```

MTH\$GFLOOR
Symbol table

INPUT_ADDR = 00000004
MTH\$GFLOOR 00000000 RG 01
MTH\$GFLOOR_R3 0000001E 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	00000035 (53.)	01 (1.)	PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC LONG

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

Phase	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.11	00:00:01.10
Command processing	117	00:00:00.44	00:00:03.29
Pass 1	76	00:00:00.50	00:00:02.14
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	45	00:00:00.40	00:00:02.01
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	273	00:00:01.48	00:00:08.62

The working set limit was 900 pages.
2047 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 2 local symbols.
191 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\$:MTHGFLOOR/OBJ=OBJ\$:MTHGFLOOR MSRCS:MTHGFLOOR/UPDATE=(ENHS:MTHGFLOOR)

MTHGCONJ LIS	MTHGINT LIS	MTHGMOD LIS
MTHEXP LIS	MTHFLOOR LIS	MTHGEXP LIS
MTHDTAN LIS	MTHDTANH LIS	MTHGMINI LIS
MTHGCOSH LIS	MTHGLOG LIS	MTHGACOS LIS
MTHGASTN LIS	MTHGATAN LIS	MTHGATANH LIS
MTHGMAXI LIS	MTHGINT LIS	