



```

MM      MM      TTTTTTTTTT  HH      HH      IIIIIII  IIIIIII  DDDDDDDD  NN      NN      NN      NN      TTTTTTTTTT
MM      MM      TTTTTTTTTT  HH      HH      IIIIIII  IIIIIII  DDDDDDDD  NN      NN      NN      NN      TTTTTTTTTT
MMMM    MMMM      TT          HH      HH      II        II        DD        DD  NN      NN      NN      NN      TT
MMMM    MMMM      TT          HH      HH      II        II        DD        DD  NN      NN      NN      NN      TT
MM      MM      TT          HH      HH      II        II        DD        DD  NNNN   NN      NNNN   NN      TT
MM      MM      TT          HH      HH      II        II        DD        DD  NNNN   NN      NNNN   NN      TT
MM      MM      TT          HHHHHHHHHH  II        II        DD        DD  NN      NN      NN      NN      TT
MM      MM      TT          HHHHHHHHHH  II        II        DD        DD  NN      NN      NN      NN      TT
MM      MM      TT          HH      HH      II        II        DD        DD  NN      NNNN   NN      NNNN   TT
MM      MM      TT          HH      HH      II        II        DD        DD  NN      NNNN   NN      NNNN   TT
MM      MM      TT          HH      HH      II        II        DD        DD  NN      NN      NN      NN      TT
MM      MM      TT          HH      HH      IIIIIII  IIIIIII  DDDDDDDD  NN      NN      NN      NN      TT
MM      MM      TT          HH      HH      IIIIIII  IIIIIII  DDDDDDDD  NN      NN      NN      NN      TT

```

```

LL      IIIIIII  SSSSSSSS
LL      IIIIIII  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
LLLLLLLLLL  IIIIIII  SSSSSSSS
LLLLLLLLLL  IIIIIII  SSSSSSSS

```

M  
S  
A  
M  
  
P  
-  
J  
  
P  
-  
I  
C  
P  
S  
P  
S  
P  
C  
A  
  
T  
1  
T  
1  
O  
  
M  
-  
-  
O  
T  
M

|     |    |              |                                       |
|-----|----|--------------|---------------------------------------|
| (2) | 49 | HISTORY      | ; Detailed Current Edit History       |
| (3) | 61 | DECLARATIONS |                                       |
| (4) | 87 | MTH\$IIDNNT  | - return nearest integer as INTEGER*2 |

```

0000 1 .TITLE MTH$IIDNNT - Nearest Integer
0000 2 .IDENT /2-001/ ; File: MTHIIDNNT.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 FACILITY: MATH LIBRARY
0000 30 ++
0000 31 ABSTRACT:
0000 32
0000 33
0000 34 --
0000 35
0000 36 VERSION: 1
0000 37
0000 38 HISTORY:
0000 39
0000 40 AUTHOR:
0000 41 Jonathan M. Taylor, 28-Jul-77: Version 0
0000 42
0000 43 MODIFIED BY:
0000 44
0000 45 Steven B. Lionel, 19-Feb-79: Version 2
0000 46
0000 47

```

```
0000 49 .SBTTL HISTORY ; Detailed Current Edit History
0000 50
0000 51
0000 52 : Edit History for Version 1 of MTH$IIDNNT
0000 53 :
0000 54 : 0-2 - Remove MTH$FLAG_JACKET. TNH 5-July-78
0000 55 : 1-001 - Update version number and copyright notice. JBS 16-NOV-78
0000 56 : 1-002 - Add "" to the PSECT directive. JBS 22-DEC-78
0000 57 : 1-003 - Make it work for negative values and add IV to entry mask.
0000 58 : SBL 06-Feb-79
0000 59 : 2-001 - Change to CVTRDL. SBL 19-Feb-1979
```

```
0000 61 .SBTTL DECLARATIONS
0000 62
0000 63 :
0000 64 : INCLUDE FILES:
0000 65 :
0000 66 :
0000 67 :
0000 68 : EXTERNAL SYMBOLS:
0000 69 :
0000 70 :
0000 71 :
0000 72 : MACROS:
0000 73 :
0000 74 :
0000 75 :
0000 76 : PSECT DECLARATIONS:
00000000 77 .PSECT _MTH$CODE PIC, SHR, LONG, EXE, NOWRT
0000 78
0000 79 :
0000 80 : EQUATED SYMBOLS:
0000 81 :
0000 82 :
0000 83 :
0000 84 : OWN STORAGE:
0000 85 :
```

- Nearest Integer

MTH\$IIDNNT - return nearest integer as I

```

0000 87      .SBTTL MTH$IIDNNT - return nearest integer as INTEGER*2
0000 88
0000 89      :++
0000 90      : FUNCTIONAL DESCRIPTION:
0000 91      :
0000 92      : MTH$IIDNNT returns as its function value the INTEGER*2
0000 93      : integer nearest to its REAL*8 argument, rounded away from
0000 94      : zero.
0000 95      :
0000 96      : CALLING SEQUENCE:
0000 97      :
0000 98      : nearest_integer.wv.v = MTH$IIDNNT (arg.rd.r)
0000 99      :
0000 100     :
0000 101     : INPUT PARAMETERS:
0000 102     : arg      - REAL*8 argument
0000 103     :
0000 104     : IMPLICIT INPUTS:
0000 105     : NONE
0000 106     :
0000 107     : OUTPUT PARAMETERS:
0000 108     : NONE
0000 109     :
0000 110     : IMPLICIT OUTPUTS:
0000 111     : NONE
0000 112     :
0000 113     : FUNCTION VALUE:
0000 114     : nearest_integer - trunc(arg + .5*sign(arg))
0000 115     :
0000 116     : SIDE EFFECTS:
0000 117     : Reserved operand and integer overflow exceptions may occur.
0000 118     :
0000 119     :--
0000 120
0000 121
0000 122
0000 123     .ENTRY MTH$IIDNNT,      ^M<IV>
0000 124     CVTRDL @4(AP), R0      ; R0 gets rounded argument
0000 125     CVTLW  R0, R0        ; R0 gets INTEGER*2
0000 126     RET
000A 127
000A 128
000A 129     .END

```

```

50 04 BC 4000
50 50 F7
04

```

MTHSIIDNNT  
Symbol table

- Nearest Integer

M 14

16-SEP-1984 01:41:50  
6-SEP-1984 11:25:56

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

Page 5  
(4)

MTHSIIDNNT 00000000 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 | 0000000A ( 10.) | 01 ( 1.)  | PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC LONG         |

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

| Phase                  | Page faults | CPU Time    | Elapsed Time |
|------------------------|-------------|-------------|--------------|
| Initialization         | 30          | 00:00:00.08 | 00:00:01.19  |
| Command processing     | 107         | 00:00:00.45 | 00:00:03.76  |
| Pass 1                 | 65          | 00:00:00.34 | 00:00:02.61  |
| Symbol table sort      | 0           | 00:00:00.00 | 00:00:00.02  |
| Pass 2                 | 37          | 00:00:00.35 | 00:00:01.72  |
| Symbol table output    | 1           | 00:00:00.00 | 00:00:00.00  |
| Psect synopsis output  | 3           | 00:00:00.02 | 00:00:00.02  |
| Cross-reference output | 0           | 00:00:00.00 | 00:00:00.00  |
| Assembler run totals   | 245         | 00:00:01.25 | 00:00:09.33  |

The working set limit was 900 pages.  
1223 bytes (3 pages) of virtual memory were used to buffer the intermediate code.  
There were 10 pages of symbol table space allocated to hold 1 non-local and 0 local symbols.  
129 source lines were read in Pass 1, producing 10 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\$:MTHSIIDNNT/OBJ=OBJ\$:MTHSIIDNNT MSRC\$:MTHSIIDNNT/UPDATE=(ENH\$:MTHSIIDNNT)



A grid of 100 small terminal window screenshots, each displaying a different MTH (Management Tools Handbook) utility. The utilities are arranged in a 10x10 grid. Each window shows a command prompt, a header, and a list of data or options. The utilities include:

- MTHFLOOR LIS
- MTHSIGN LIS
- MTHMINI LIS
- MTHLOG LIS
- MTHHTAN LIS
- MTHIDNNT LIS
- MTHIHNT LIS
- MTHSORT LIS
- MTHIMAX0 LIS
- MTHHINT LIS
- MTHSINH LIS
- MTHHTANH LIS
- MTHMAX1 LIS
- MTHSINCO LIS
- MTHMOD LIS
- MTHIGNNT LIS