



```

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

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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

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MAC

(2)	50
(3)	60
(4)	91

HISTORY ; Detailed Current Edit History  
DECLARATIONS  
MTH\$DNINT - return nearest integer as REAL\*8

```

0000 1      .TITLE MTHSDNINT - Nearest Integer
0000 2      .IDENT /1-003/           ; File: MTHDNINT.MAR
0000 3
0000 4
0000 5 :*****
0000 6 :*
0000 7 :*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
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0000 21 :*
0000 22 :*  DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS
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 :   This module contains routine MTHSDNINT:
0000 33 :   Return the rounded double-precision floating-point argument.
0000 34
0000 35
0000 36 :--
0000 37
0000 38 : VERSION: 1
0000 39
0000 40 : HISTORY:
0000 41
0000 42 : AUTHOR:
0000 43 :   Jonathan M. Taylor, 28-Jul-77: Version 0
0000 44
0000 45 : MODIFIED BY:
0000 46
0000 47
0000 48

```

```
0000 50 .SBTTL HISTORY ; Detailed Current Edit History
0000 51
0000 52
0000 53 ; Edit History for Version 1 of MTHSDNINT
0000 54 :
0000 55 : 0-3 - Remove MTH$FLAG_JACKET. TNH 5-July-78
0000 56 : 1-001 - Update version number and copyright notice. JBS 16-NOV-78
0000 57 : 1-002 - Add "" to PSECT directive. JBS 22-DEC-78
0000 58 : 1-003 - Make it work. SBL 05-Feb-79
```

```
0000 60 .SBTTL DECLARATIONS
0000 61
0000 62 :
0000 63 : INCLUDE FILES:
0000 64 : NONE
0000 65 :
0000 66 :
0000 67 :
0000 68 : EXTERNAL SYMBOLS:
0000 69 : NONE
0000 70 :
0000 71 :
0000 72 :
0000 73 : MACROS:
0000 74 : NONE
0000 75 :
0000 76 :
0000 77 :
0000 78 : PSECT DECLARATIONS:
00000000 79 : .PSECT _MTH$CODE PIC, SHR, LONG, EXE, NOWRT
0000 80
0000 81 :
0000 82 : EQUATED SYMBOLS:
0000 83 : NONE
0000 84 :
0000 85 :
0000 86 :
0000 87 : OWN STORAGE:
0000 88 : NONE
0000 89 :
```

- Nearest Integer  
MTH\$DNINT - return nearest integer as RE

```

0000 91      .SBTTL MTH$DNINT - return nearest integer as REAL*8
0000 92
0000 93      :++
0000 94      : FUNCTIONAL DESCRIPTION:
0000 95      : Returns the rounded (away from zero) argument.
0000 96      :
0000 97      :
0000 98      : CALLING SEQUENCE:
0000 99      : NONE
0000 100     : Nearest_integer.wd.v = MTH$DNINT (arg.rd.r)
0000 101     :
0000 102     :
0000 103     : INPUT PARAMETERS:
0000 104     : The input parameter is a double-precision floating-point value
0000 105     : and is call-by-reference.
0000 106     :
0000 107     :
0000 108     : IMPLICIT INPUTS:
0000 109     : NONE
0000 110     :
0000 111     : OUTPUT PARAMETERS:
0000 112     : NONE
0000 113     :
0000 114     : IMPLICIT OUTPUTS:
0000 115     : NONE
0000 116     :
0000 117     : COMPLETION CODES:
0000 118     : NONE
0000 119     :
0000 120     : SIDE EFFECTS:
0000 121     : Reserved Operand and Floating Overflow exceptions can occur.
0000 122     :
0000 123     :
0000 124     :--
0000 125
0000 126
0000 127
0000 128     .ENTRY MTH$DNINT, ^M<R2, R3>
50 04 BC 00 61 0002 129     ADDD3 #0.5, @4(AP), R0      ; R0/R1 = arg + 0.5
03 14 0007 130     BGTR 1$                          ; branch if positive
52 52 08 50 08 62 0009 131     SUBD #1.0, R0                          ; R0/R1 = arg - 0.5
00 50 74 000C 132 1$: EMODD R0, #0, #1, R2, R2    ; R2/R3 = fraction_part(R0/R1)
50 52 62 0012 133     SUBD2 R2, R0                          ; R0/R1 = integer_part(R0/R1)
0015 134     RET
0016 135
0016 136
0016 137     .END

```

MTHSDNINT  
Symbol table

- Nearest Integer

M 10

16-SEP-1984 01:19:32  
6-SEP-1984 11:22:26

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

Page 5  
(4)

MTHSDNINT 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	00000016 ( 22.)	01 ( 1.)	PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC LONG

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

Phase	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.09	00:00:01.18
Command processing	106	00:00:00.46	00:00:03.45
Pass 1	77	00:00:00.37	00:00:01.73
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	39	00:00:00.31	00:00:01.54
Symbol table output	1	00:00:00.01	00:00:00.01
Psect synopsis output	3	00:00:00.02	00:00:00.14
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	257	00:00:01.27	00:00:08.05

The working set limit was 900 pages.  
1410 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 1 local symbols.  
137 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\$:MTHDNINT/OBJ=OBJ\$:MTHDNINT MSRC\$:MTHDNINT/UPDATE=(ENH\$:MTHDNINT)



MTHCOSH LIS

MTHMINI LIS

MTHLOG LIS

MTHSINCO LIS

MTHDATANH LIS

MTHCONJG LIS

MTHDINT LIS

MTHMAXI LIS

MTHSIGN LIS

MTHDINTM LIS

MTHMOD LIS

MTHDSINH LIS

MTHDEXP LIS

MTHDFLOOR LIS

MTHDPROD LIS