```
MMM          MMM  TTTTTTTTTTTTTTT  HHH          HHH  RRRRRRRRRRR     TTTTTTTTTTTTTTT  LLL
MMM          MMM  TTTTTTTTTTTTTTT  HHH          HHH  RRRRRRRRRRRR    TTTTTTTTTTTTTTT  LLL
MMM          MMM  TTTTTTTTTTTTTTT  HHH          HHH  RRRRRRRRRRRR    TTTTTTTTTTTTTTT  LLL
MMMMMM    MMMMMM        TTT       HHH          HHH  RRR         RRR       TTT         LLL
MMMMMM    MMMMMM        TTT       HHH          HHH  RRR         RRR       TTT         LLL
MMMMMM    MMMMMM        TTT       HHH          HHH  RRR         RRR       TTT         LLL
MMM  MMM  MMM           TTT       HHH          HHH  RRR         RRR       TTT         LLL
MMM  MMM  MMM           TTT       HHH          HHH  RRR         RRR       TTT         LLL
MMM  MMM  MMM           TTT       HHH          HHH  RRR         RRR       TTT         LLL
MMM       MMM           TTT       HHHHHHHHHHHHHHH  RRRRRRRRRRR         TTT         LLL
MMM       MMM           TTT       HHHHHHHHHHHHHHH  RRRRRRRRRRRR        TTT         LLL
MMM       MMM           TTT       HHHHHHHHHHHHHHH  RRRRRRRRRRRR        TTT         LLL
MMM       MMM           TTT       HHH          HHH  RRR   RRR           TTT         LLL
MMM       MMM           TTT       HHH          HHH  RRR   RRR           TTT         LLL
MMM       MMM           TTT       HHH          HHH  RRR   RRR           TTT         LLL
MMM       MMM           TTT       HHH          HHH  RRR      RRR        TTT         LLL
MMM       MMM           TTT       HHH          HHH  RRR      RRR        TTT         LLL
MMM       MMM           TTT       HHH          HHH  RRR      RRR        TTT         LLL
MMM       MMM           TTT       HHH          HHH  RRR         RRR     TTT         LLLLLLLLLLLLLLL
MMM       MMM           TTT       HHH          HHH  RRR         RRR     TTT         LLLLLLLLLLLLLLL
MMM       MMM           TTT       HHH          HHH  RRR         RRR     TTT         LLLLLLLLLLLLLLL
```

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

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
```

Table of contents

```
0000     1          .TITLE  MTH$DINT - FLOATING TRUNCATION
0000     2          .IDENT  /1-005/         ; File: MTHDINT.MAR Edit: JBS1005
0000     3
0000     4 ;
0000     5 ;*****************************************************************************
0000     6 ;*                                                                           *
0000     7 ;*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                                  *
0C00     8 ;*  DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.                   *
0000     9 ;*  ALL RIGHTS RESERVED.                                                     *
0000    10 ;*                                                                           *
0000    11 ;*  THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED    *
0000    12 ;*  ONLY IN  ACCORDANCE WITH  THE  TERMS  OF  SUCH  LICENSE  AND WITH THE   *
0000    13 ;*  INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR  ANY  OTHER    *
0000    14 ;*  COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY    *
0000    15 ;*  OTHER PERSON.  NO TITLE TO AND OWNERSHIP OF  THE  SOFTWARE IS  HEREBY    *
0000    16 ;*  TRANSFERRED.                                                             *
0000    17 ;*                                                                           *
0000    18 ;*  THE INFORMATION IN THIS SOFTWARE IS  SUBJECT TO CHANGE WITHOUT NOTICE    *
0000    19 ;*  AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT   *
0000    20 ;*  CORPORATION.                                                             *
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 MTH$DINT:
0000    33 ;       Return truncated double-precision argument.
0000    34 ;
0000    35 ; VERSION: 0
0000    36 ;
0000    37 ; HISTORY:
0000    38 ;
0000    39 ; AUTHOR:
0000    40 ;       Jonathan M. Taylor, 30-Jul-77: Version 0
0000    41 ;
0000    42 ; MODIFIED BY:
0000    43 ;
0000    44 ;
0000    45 ;
```

```
0000     47          .SBTTL  HISTORY         ; Detailed Current Edit History
0000     48
0000     49
0000     50 ; Edit History for Version 0 of MTH$DINT
0000     51 ;
0000     52 ; 0-3    - Remove MTH$FLAG_JACKET.  TNH 5-July-78
0000     53 ; 1-001  - Update version number and copyright notice.  JBS 16-NOV-78
0000     54 ; 1-002  - Add "_" to the PSECT directive.  JBS 22-DEC-78
0000     55 ; 1-003  - Add a JSB entry point.  JBS 16-AUG-1979
0000     56 ; 1-004  - Fix MTH$DINT_R3 so that it disables IV.  Add MTH$DINT_R4
0000     57 ;          that does the same.  SBL 26-Sept-1979
0000     58 ; 1-005  - Remove MTH$DINT_R3; all callers have converted to _R4.
0000     59 ;          JBS 20-DEC-1979
0000     60 ;--
```

```
                        .SBTTL  DECLARATIONS

;
; INCLUDE FILES:
;
;       NONE
;
; EXTERNAL SYMBOLS:
;
;       NONE
;
; MACROS:
;
        $PSLDEF                         ; PSL macros

;
; PSECT DECLARATIONS:
00000000        .PSECT  _MTH$CODE       PIC, SHR, LONG, EXE, NOWRT

;
; EQUATED SYMBOLS:
;
;       NONE
;
; OWN STORAGE:
;
;       NONE
;
```

```
                     90          .SBTTL  MTH$DINT        Double to Double truncation
                     91
                     92 ;++
                     93 ; FUNCTIONAL DESCRIPTION:
                     94 ;
                     95 ;       Returns the argument with all zeroes to the right of the decimal
                     96 ;       point.
                     97 ;
                     98 ; CALLING SEQUENCE:
                     99 ;
                    100 ;       Truncation.wd.v = MTH$DINT (arg.rd.r)
                    101 ;
                    102 ; INPUT PARAMETERS:
                    103 ;
                    104 ;       The one argument is a double-precision floating-point value
                    105 ;       and is call-by-reference.
                    106 ;
                    107 ; IMPLICIT INPUTS:
                    108 ;
                    109 ;       NONE
                    110 ;
                    111 ; OUTPUT PARAMETERS:
                    112 ;
                    113 ;       NONE
                    114 ;
                    115 ; IMPLICIT OUTPUTS:
                    116 ;
                    117 ;       NONE
                    118 ;
                    119 ; COMPLETION CODES:
                    120 ;
                    121 ;       NONE
                    122 ;
                    123 ; SIDE EFFECTS:
                    124 ;
                    125 ;       Reserved Operand exception can occur.
                    126 ;
                    127 ;--
                0000 0000   128          .ENTRY  MTH$DINT,       ^M<>
50   50   08   00    04 BC   74 0002   129          EMODD   @4(AP), #0, #1, R0, R0  ; R0/R1 = fraction_part(arg)
          50   04 BC    50   63 0009   130          SUBD3   R0, @4(AP), R0          ; R0/R1 = integer_part(arg)
                              04 000E   131          RET
```

```
                                000F   133          .SBTTL  MTH$DINT_R4     JSB entry point
                                000F   134
                                000F   135 ;++
                                000F   136 ; FUNCTIONAL DESCRIPTION:
                                000F   137 ;
                                000F   138 ;       Returns the argument with all zeroes to the right of the decimal
                                000F   139 ;       point.
                                000F   140 ;
                                000F   141 ; CALLING SEQUENCE:
                                000F   142 ;
                                000F   143 ;       Truncation.wd.v = JSB MTH$DINT_R4 (arg.rd.v)
                                000F   144 ;
                                000F   145 ; INPUT PARAMETERS:
                                000F   146 ;
                                000F   147 ;       The one argument is a double-precision floating-point value
                                000F   148 ;       and is call-by-reference.
                                000F   149 ;
                                000F   150 ; IMPLICIT INPUTS:
                                000F   151 ;
                                000F   152 ;       NONE
                                000F   153 ;
                                000F   154 ; OUTPUT PARAMETERS:
                                000F   155 ;
                                000F   156 ;       NONE
                                000F   157 ;
                                000F   158 ; IMPLICIT OUTPUTS:
                                000F   159 ;
                                000F   160 ;       NONE
                                000F   161 ;
                                000F   162 ; COMPLETION CODES:
                                000F   163 ;
                                000F   164 ;       NONE
                                000F   165 ;
                                000F   166 ; SIDE EFFECTS:
                                000F   167 ;
                                000F   168 ;       Reserved Operand exception can occur.
                                000F   169 ;
                                000F   170 ;--
                                000F   171
                                000F   172
                                000F   173 MTH$DINT_R4::                                ; R0/R1 = argument
                          54    DC   000F   174          MOVPSL  R4                     ; Save the PSL
                          20    B9   0011   175          BICPSW  #PSL$M_IV              ; Disable IV
52   52   08    00        50    74   0013   176          EMODD   R0, #0, #1, R2, R2     ; R2/R3 = fraction_part(arg)
          50    50        52    63   0019   177          SUBD3   R2, R0, R0             ; R0/R1 = integer_part(arg)
          54    FFDF      8F    AA   001D   178          BICW    #^C<PSL$M_IV>, R4      ; Clear all but PSL$V_IV bit
                          54    B8   0022   179          BISPSW  R4                     ; Restore IV if set
                                05   0024   180          RSB                            ; Return to caller
                                     0025   181
                                     0025   182          .END
```

```
MTH$DINT          00000000 RG    02
MTH$DINT_R4       0000000F RG    02
PSL$M_IV        = 00000020
```

Psect synopsis

```
PSECT name                      Allocation          PSECT No.  Attributes
----------                      ----------          ---------  ----------
.  ABS  .                       00000000  (    0.)  00 (  0.)  NOPIC   USR   CON   ABS   LCL NOSHR NOEXE NORD  NOWRT NOVEC BYTE
$ABS$                           00000000  (    0.)  01 (  1.)  NOPIC   USR   CON   ABS   LCL NOSHR   EXE   RD    WRT NOVEC BYTE
_MTH$CODE                       00000025  (   37.)  02 (  2.)    PIC   USR   CON   REL   LCL   SHR   EXE   RD  NOWRT NOVEC LONG
```

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	35	00:00:00.09	00:00:00.96
Command processing	135	00:00:00.47	00:00:02.37
Pass 1	113	00:00:01.06	00:00:04.62
Symbol table sort	0	00:00:00.03	00:00:00.05
Pass 2	46	00:00:00.44	00:00:01.77
Symbol table output	2	00:00:00.01	00:00:00.01
Psect synopsis output	3	00:00:00.03	00:00:00.06
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	336	00:00:02.14	00:00:09.85

```
The working set limit was 900 pages.
4031 bytes (8 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 41 non-local and 0 local symbols.
182 source lines were read in Pass 1, producing 13 object records in Pass 2.
8 pages of virtual memory were used to define 7 macros.
```

Macro library statistics

Macro library name	Macros defined
_255DUA28:[SYSLIB]STARLET.MLB;2	4

```
98 GETS were required to define 4 macros.

There were no errors, warnings or information messages.

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

MTHDCOSH LIS

MTHDMIN LIS

MTHDLOG LIS

MTHDSINCO LIS

MTHDATANH LIS

MTHDNINT LIS

MTHDSQRT LIS

MTHDCONJG LIS

MTHDINT LIS

MTHDMAX1 LIS

MTHDSIGN LIS

MTHDIM LIS

MTHDMOD LIS

MTHDSINH LIS

MTHDEXP LIS

MTHDFLOOR LIS

MTHDPROD LIS