



```
MM      MM      TTTTTTTTTT  HH      HH      MM      MM      000000  DDDDDDDD
MM      MM      TTTTTTTTTT  HH      HH      MM      MM      000000  DDDDDDDD
MMMM    MMMM      TT        HH      HH      MMMM    MMMM  00      00  DD      DD
MMMM    MMMM      TT        HH      HH      MMMM    MMMM  00      00  DD      DD
MM      MM      TT        HH      HH      MM      MM      00      00  DD      DD
MM      MM      TT        HH      HH      MM      MM      00      00  DD      DD
MM      MM      TT        HHHHHHHHHH  MM      MM      00      00  DD      DD
MM      MM      TT        HHHHHHHHHH  MM      MM      00      00  DD      DD
MM      MM      TT        HH      HH      MM      MM      00      00  DD      DD
MM      MM      TT        HH      HH      MM      MM      00      00  DD      DD
MM      MM      TT        HH      HH      MM      MM      00      00  DD      DD
MM      MM      TT        HH      HH      MM      MM      00      00  DD      DD
MM      MM      TT        HH      HH      MM      MM      00      00  DD      DD
MM      MM      TT        HH      HH      MM      MM      000000  DDDDDDDD
MM      MM      TT        HH      HH      MM      MM      000000  DDDDDDDD
```

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```
LL      IIIIII  SSSSSSSS
LL      IIIIII  SSSSSSSS
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)	50	HISTORY	: Detailed Current Edit History
(3)	59	DECLARATIONS	
(4)	90	MTH\$MOD	
(5)	135	MTH\$JMOD	

```
0000 1 .TITLE MTH$MOD FORTRAN MOD ROUTINES
0000 2 .IDENT /1-002/ ; File: MTHMOD.MAR
0000 3
0000 4
0000 5 :*****
0000 6 :*
0000 7 :* COPYRIGHT (c) 1978, 1980, 1982, 1984 BY *
0000 8 :* DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS. *
0000 9 :* ALL RIGHTS RESERVED. *
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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 routines IMOD and JMOD:
0000 33 : Return remainder after divisor.
0000 34 :
0000 35 :
0000 36 :--
0000 37 :
0000 38 : VERSION: 0
0000 39 :
0000 40 : HISTORY:
0000 41 :
0000 42 : AUTHOR:
0000 43 : Jonathan M. Taylor, 11-JUL-77: Version 0
0000 44 :
0000 45 : MODIFIED BY:
0000 46 :
0000 47 :
0000 48 :
```

MTH\$MOD  
1-002

```
0000 50      .SBTTL HISTORY      ; Detailed Current Edit History
0000 51
0000 52
0000 53 ; Edit History for Version 0 of MTHMOD
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 the PSECT directive. JBS 22-DEC-78
```

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```
0000 59      .SBTTL DECLARATIONS
0000 60
0000 61 :
0000 62 : INCLUDE FILES:
0000 63 :   oerr.mar
0000 64 :
0000 65 :
0000 66 :
0000 67 : EXTERNAL SYMBOLS:
0000 68 :   NONE
0000 69 :
0000 70 :
0000 71 :
0000 72 : MACROS:
0000 73 :   NONE
0000 74 :
0000 75 :
0000 76 :
0000 77 : PSECT DECLARATIONS:
0000 78 :   .PSECT _MTH$CODE          PIC, SHR, LONG, EXE, NOWRT
0000 79 :
0000 80 :
0000 81 : EQUATED SYMBOLS:
0000 82 :   NONE
0000 83 :
0000 84 :
0000 85 :
0000 86 : OWN STORAGE:
0000 87 :   NONE
0000 88 :
```

```

0000 90      .SBTTL  MTH$MOD
0000 91
0000 92      :++
0000 93      : FUNCTIONAL DESCRIPTION:
0000 94      :   Return remainder after division.
0000 95
0000 96
0000 97      : CALLING SEQUENCE:
0000 98      :   Remainder.ww.v = MTH$IMOD (dividend.rw.r, divisor.rw.r)
0000 99
0000 100
0000 101
0000 102     : INPUT PARAMETERS:
0000 103     :   The two parameters are one-word values and are call-by-reference.
0000 104
0000 105
0000 106     : IMPLICIT INPUTS:
0000 107     :   NONE
0000 108
0000 109     : OUTPUT PARAMETERS:
0000 110     :   NONE
0000 111
0000 112     : IMPLICIT OUTPUTS:
0000 113     :   NONE
0000 114
0000 115     : COMPLETION CODES:
0000 116     :   NONE
0000 117
0000 118     : SIDE EFFECTS:
0000 119     :   Integer Overflow and Divide by Zero exceptions can occur.
0000 120
0000 121
0000 122     :--
0000 123
0000 124
0000 125
0000 126
50  50  04  BC  4004 0000 127      .ENTRY  MTH$IMOD,      ^M<R2, IV> ; enable integer overflow
50  00  01  50  32  0002 128      CVTWL  @4(AP), R0      ; R0 = divd
50  52  08  BC  7A  0006 129      EMUL   R0, #1, #0, R0  ; R0/R1 = quadword divd
50  50  50  52  32  000B 130      CVTWL  @8(AP), R2      ; R2 = divr
50  50  50  52  7B  000F 131      EDIV   R2, R0, R0, R0 ; R0 = longword remainder
50  50  50  50  7F  0014 132      CVTLW  R0, R0         ; R0 = word remainder
50  50  50  04  0017 133      RET

```

```

0018 135      .SBTTL  MTH$JMOD
0018 136
0018 137      :++
0018 138      : FUNCTIONAL DESCRIPTION:
0018 139      :   Return the remainder after division.
0018 140      :
0018 141      :
0018 142      : CALLING SEQUENCE:
0018 143      :   Remainder.wl.v = MTH$JMOD (dividend.rl.r, divisor.rl.r)
0018 144      :
0018 145      :
0018 146      : INPUT PARAMETERS:
0018 147      :   The two parameters are longword values and are call-by-reference.
0018 148      :
0018 149      :
0018 150      :
0018 151      : IMPLICIT INPUTS:
0018 152      :   NONE
0018 153      :
0018 154      : OUTPUT PARAMETERS:
0018 155      :   NONE
0018 156      :
0018 157      : IMPLICIT OUTPUTS:
0018 158      :   NONE
0018 159      :
0018 160      : COMPLETION CODES:
0018 161      :   NONE
0018 162      :
0018 163      : SIDE EFFECTS:
0018 164      :   NONE
0018 165      :
0018 166      :--
0018 167
0018 168
0018 169      .ENTRY  MTH$JMOD,      ^M<R2, IV> ; enable integer overflow
50  00  01  04 BC  4004 001A 170      EMUL   @4(AP), #1, #0, R0 ; R0 = quadword divd
50  50  50  08 BC  7B  0020 171      EDIV  @8(AP), R0, R0, R0 ; R0 = longword remainder
0026 172      RET
0027 173
0027 174
0027 175      .END

```



MTH\$MOD  
Symbol table

FORTTRAN MOD ROUTINES

B 8

16-SEP-1984 01:47:23  
6-SEP-1984 11:26:42

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

Page 6  
(5)

MTH\$IMOD 00000000 RG 01  
MTH\$JMOD 00000018 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	00000027 ( 39.)	01 ( 1.)	PIC	USR	CON	REL	LCL	SHR	EXE	RD	NOWRT	NOVEC	LONG		

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

Phase	Page faults	CPU Time	Elapsed Time
Initialization	31	00:00:00.10	00:00:00.59
Command processing	133	00:00:00.46	00:00:03.45
Pass 1	68	00:00:00.43	00:00:03.08
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	45	00:00:00.37	00:00:01.02
Symbol table output	1	00:00:00.01	00:00:00.01
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	283	00:00:01.39	00:00:08.22

The working set limit was 900 pages.  
1815 bytes (4 pages) of virtual memory were used to buffer the intermediate code.  
There were 10 pages of symbol table space allocated to hold 2 non-local and 0 local symbols.  
175 source lines were read in Pass 1, producing 13 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\$:MTHMOD/OBJ=OBJ\$:MTHMOD MSRC\$:MTHMOD/UPDATE=(ENH\$:MTHMOD)



This image displays a grid of 135 terminal windows, arranged in 9 rows and 15 columns. Each window contains a different software utility or program, all running under the VAX/VMS operating system. The windows are organized as follows:

- Row 1: 15 windows, mostly containing system status or utility output.
- Row 2: 15 windows, including MTHMINO LIS, MTHMSG LIS, and others.
- Row 3: 15 windows, including MTHMINO LIS, MTHJDMNT LIS, MTHMAX1 LIS, and others.
- Row 4: 15 windows, including MTHJDMNT LIS, MTHJDMNT LIS, MTHMSGDEF LIS, and others.
- Row 5: 15 windows, including MTHJDMNT LIS, MTHMAX0 LIS, MTHSGN LIS, and others.
- Row 6: 15 windows, including MTHMOD LIS, MTHSIGNAL LIS, and others.
- Row 7: 15 windows, including MTHJININT LIS, MTHSINCO LIS, MTHSORT LIS, and others.
- Row 8: 15 windows, including MTHJININT LIS, MTHRANDOM LIS, MTHSORT2 LIS, and others.
- Row 9: 15 windows, including MTHJIGNNT LIS, MTHMINI LIS, MTHSIGN LIS, and others.

The text within the windows is monospaced and includes various system messages, file names, and user prompts. The overall layout is a dense grid of text-based user interfaces.