


```

MM      MM      TTTTTTTTTT  HH      HH      JJ      MM      MM      IIIIII  NN      NN      000000
MM      MM      TTTTTTTTTT  HH      HH      JJ      MM      MM      IIIIII  NN      NN      000000
MMMM    MMMM      TT        HH      HH      JJ      MMMM  MMMM      II      NN      NN      00      00
MMMM    MMMM      TT        HH      HH      JJ      MMMM  MMMM      II      NN      NN      00      00
MM  MM  MM      TT        HH      HH      JJ      MM  MM  MM      II      NNNN  NN      00      0000
MM  MM  MM      TT        HH      HH      JJ      MM  MM  MM      II      NNNN  NN      00      0000
MM      MM      TT        HHHHHHHHHH  JJ      JJ      MM      MM      II      NN  NN  NN      00  00  00
MM      MM      TT        HHHHHHHHHH  JJ      JJ      MM      MM      II      NN  NN  NN      00  00  00
MM      MM      TT        HH      HH      JJ      JJ      JJ      MM      MM      II      NN      NNNN  0000  00
MM      MM      TT        HH      HH      JJ      JJ      JJ      MM      MM      II      NN      NNNN  0000  00
MM      MM      TT        HH      HH      JJ      JJ      JJ      MM      MM      II      NN      NN      00      00
MM      MM      TT        HH      HH      JJ      JJ      JJ      MM      MM      II      NN      NN      00      00
MM      MM      TT        HH      HH      JJ      JJ      JJ      MM      MM      IIIIII  NN      NN      000000
MM      MM      TT        HH      HH      JJ      JJ      JJ      MM      MM      IIIIII  NN      NN      000000

```

```

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
LLLLLLLLLLLL IIIIII  SSSSSSSS
LLLLLLLLLLLL IIIIII  SSSSSSSS

```

| | | | |
|-----|----|-------------------------|---------------------------------|
| (2) | 50 | HISTORY | ; Detailed Current Edit History |
| (3) | 59 | DECLARATIONS | |
| (4) | 90 | MTH\$JMINO, MTH\$AJMINO | |

```
0000 1 .TITLE MTH$JMINO JMINO and AJMINO functions
0000 2 .IDENT /1-002/ ; File: MTHJMINO.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. *
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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 the minimum value functions for
0000 33 longword arguments.
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, 12-JUL-77: Version 0
0000 44
0000 45 MODIFIED BY:
0000 46
0000 47
0000 48 :
```

MTH\$JMINO
1-002

F 5
JMINO and AJMINO functions 16-SEP-1984 01:45:58 VAX/VMS Macro V04-00 Page 2
HISTORY ; Detailed Current Edit History 6-SEP-1984 11:26:34 [MTHRTL.SRC]MTHJMINO.MAR;1 (2)

```
0000 50      .SBTTL HISTORY          ; Detailed Current Edit History
0000 51
0000 52
0000 53 : Edit History for Version 0 of MTHJMINO
0000 54 :
0000 55 : 0-3 - Fix access violation. TNH 16-Aug-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
```

```
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$JMINO, MTH$AJMINO
0000 91
0000 92      :++
0000 93      : FUNCTIONAL DESCRIPTION:
0000 94      : Call routine MINL to compute the minimum of n arguments, n is
0000 95      : greater than or equal to 1.
0000 96      : Return the result converted to the proper type.
0000 97
0000 98
0000 99      CALLING SEQUENCE:
0000 100     : Minimum.wl.v =MTH$JMINO ({arg.rl.r})
0000 101     : Minimum.wf.v =MTH$AJMINO ({arg.rl.r})
0000 102
0000 103
0000 104
0000 105     INPUT PARAMETERS:
0000 106     : The n parameters are longword values and are call-by-reference.
0000 107
0000 108
0000 109     IMPLICIT INPUTS:
0000 110     : NONE
0000 111
0000 112     OUTPUT PARAMETERS:
0000 113     : NONE
0000 114
0000 115     IMPLICIT OUTPUTS:
0000 116     : NONE
0000 117
0000 118     COMPLETION CODES:
0000 119     : NONE
0000 120
0000 121     SIDE EFFECTS:
0000 122     : NONE
0000 123
0000 124     :--
0000 125
0000 126
0000 127
0000 128
09  0000 0000 129     .ENTRY  MTH$JMINO,      ^M<>
      10 0002 130     BSB    MINL          ; R0 = min arg
      04 0004 131     RET
      0005 132
50  0000 0005 133     .ENTRY  MTH$AJMINO,    ^M<>
      04 10 0007 134     BSB    MINL          ; R0 = min arg
      50 4E 0009 135     CVTLF  R0, R0      ; REAL*4 it
      04 000C 136     RET
0000 137
0000 138     :+
0000 139     : MINL returns the smallest of the INTEGER*4 args.
0000 140     :-
0000 141
0000 142     MINL:
51  6C  9A 000D 143     MOVZBL (AP), R1          ; R1 = number of args
      8C  D5 0010 144     TSTL  (AP)+          ; AP -> first arg adr
50  9C  D0 0012 145     1$:  MOVL  @ (AP)+, R0      ; get trial min
      08  11 0015 146     BRB    3$              ; check arg count

```

```
50 00 BC D1 0017 147 2$: CMPL @0(AP),R0 ; if this arg is less then trial min
    F5 19 001B 148 BLSS 1$ ; then it becomes trial min
    8C D5 001D 149 TSTL (AP)+ ; else ignore it
    F5 51 F5 001F 150 3$: SOBGTR R1, 2$ ; check arg count
    05 0022 151 RSB
    0023 152
    0023 153
    0023 154 .END
```


MTH\$JMINO
Symbol table

J 5
JMINO and AJMINO functions

16-SEP-1984 01:45:58
6-SEP-1984 11:26:34

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

Page 6
(4)

| | | | |
|-------------|----------|----|----|
| MINL | 0000000D | R | 01 |
| MTH\$AJMINO | 00000005 | RG | 01 |
| MTH\$JMINO | 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 | 00000023 (35.) | 01 (1.) | PIC | USR | CON | REL | LCL | SHR | EXE | RD | NOWRT | NOVEC | LONG | | |

! Performance indicators !

| Phase | Page faults | CPU Time | Elapsed Time |
|------------------------|-------------|-------------|--------------|
| Initialization | 30 | 00:00:00.13 | 00:00:00.75 |
| Command processing | 123 | 00:00:00.60 | 00:00:03.05 |
| Pass 1 | 69 | 00:00:00.43 | 00:00:01.40 |
| Symbol table sort | 0 | 00:00:00.02 | 00:00:00.06 |
| Pass 2 | 42 | 00:00:00.34 | 00:00:01.81 |
| Symbol table output | 2 | 00:00:00.01 | 00:00:00.01 |
| Psect synopsis output | 2 | 00:00:00.04 | 00:00:00.11 |
| Cross-reference output | 0 | 00:00:00.00 | 00:00:00.00 |
| Assembler run totals | 270 | 00:00:01.58 | 00:00:07.24 |

The working set limit was 750 pages.
1615 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 3 local symbols.
154 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\$:MTHJMINO/OBJ=OBJ\$:MTHJMINO MSRC\$:MTHJMINO/UPDATE=(ENH\$:MTHJMINO)

A grid of 100 small document thumbnails, arranged in 10 rows and 10 columns. Each thumbnail contains a preview of a document page. Many of these pages contain the text 'MTH[...].LIS', such as 'MTHMINO LIS', 'MTHMSG LIS', 'MTHMAX1 LIS', 'MTHJIDMNT LIS', 'MTHMSGDEF LIS', 'MTHSGN LIS', 'MTHMOD LIS', 'MTHSIGNAL LIS', 'MTHSQRTR2 LIS', 'MTHJINT LIS', 'MTHSINCO LIS', 'MTHSQR LIS', 'MTHININT LIS', 'MTHRANDOM LIS', 'MTHJIGNNT LIS', 'MTHMINI LIS', 'MTHJSIGN LIS', and 'MTHSIGN LIS'. Each thumbnail also displays a portion of the document's header information, including file names and system details.