MTHRTL

MTH$MIN1
1-002
IMIN1, JMIN1, and AMIN1 functions   B 7   16-SEP-1984 01:47:02 VAX/VMS Macro V04-00   Page 1
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```
0000        1              .TITLE  MTH$MIN1       IMIN1, JMIN1, and AMIN1 functions
0000        2              .IDENT  /1-002/        ; File: MTHMIN1.MAR
0000        3
0000        4
0000        5 ;*******************************************************************
0000        6 ;*                                                                 *
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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 which take
0000       33 ;       floating-point 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 ;
```

```
                   0000    50              .SBTTL  HISTORY            ; Detailed Current Edit History
                   0000    51
                   0000    52
                   0000    53 ; Edit History for Version 0 of MTHMIN1
                   0000    54 ;
                   0000    55 ; 0-4   - Remove MTH$FLAG_JACKET.  TNH 26-July-78
                   0000    56 ; 0-5   - Fix access violation.  TNH 16-Aug-78
                   0000    57 ; 1-001 - Update version number and copyright notice.  JBS 16-NOV-78
                   0000    58 ; 1-002 - Add "_" to the PSECT directive.  JBS 22-DEC-78
```

```
           0000      60                 .SBTTL  DECLARATIONS
           0000      61
           0000      62 ;
           0000      63 ; INCLUDE FILES:
           0000      64 ;      oerr.mar
           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 ;
```

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```
                    0000          91              .SBTTL  MTH$IMIN1, MTH$JMIN1, MTH$AMIN1
                    0000          92      ;
                    0000          93      ;++
                    0000          94      ; FUNCTIONAL DESCRIPTION:
                    0000          95      ;       Use routine MINF to compute the minimum of n arguments,
                    0000          96      ;       n is greater than or equal to 1.  Return the result converted
                    0000          97      ;       to the proper type.
                    0000          98      ;
                    0000          99      ;
                    0000         100      ; CALLING SEQUENCE:
                    0000         101      ;       Minimum.ww.v = MTH$IMIN1 ({arg.rf.r})
                    0000         102      ;       Minimum.wl.v = MTH$JMIN1 ({arg.rf.r})
                    0000         103      ;       Minimum.wf.v = MTH$AMIN1 ({arg.rf.r})
                    0000         104      ;
                    0000         105      ;
                    0000         106      ;
                    0000         107      ; INPUT PARAMETERS:
                    0000         108      ;       The n parameters are single-precision floating-point values
                    0000         109      ;       and are call-by-reference.
                    0000         110      ;
                    0000         111      ;
                    0000         112      ; IMPLICIT INPUTS:
                    0000         113      ;       NONE
                    0000         114      ;
                    0000         115      ; OUTPUT PARAMETERS:
                    0000         116      ;       NONE
                    0000         117      ;
                    0000         118      ; IMPLICIT OUTPUTS:
                    0000         119      ;       NONE
                    0000         120      ;
                    0000         121      ; COMPLETION CODES:
                    0000         122      ;       NONE
                    0000         123      ;
                    0000         124      ; SIDE EFFECTS:
                    0000         125      ;       Reserved Operand and Integer Overflow exceptions can occur.
                    0000         126      ;
                    0000         127      ;
                    0000         128      ;--
                    0000         129
                    0000         130
                    0000         131
                    0000         132
              4000  0000         133              .ENTRY  MTH$IMIN1,      ^M<IV>
         11   10    0002         134              BSB     MINF            ; R0 = min arg
   50  50   49      0004         135              CVTFW   R0, R0          ; INTEGER*2 it
         04         0007         136              RET
                    0008         137
              4000  0008         138              .ENTRY  MTH$JMIN1,      ^M<IV>
         09   10    000A         139              BSB     MINF            ; R0 = min arg
   50  50   4A      000C         140              CVTFL   R0, R0          ; INTEGER*4 it
         04         000F         141              RET
                    0010         142
              0000  0010         143              .ENTRY  MTH$AMIN1,      ^M<>
         01   10    0012         144              BSB     MINF            ; R0 = min arg
         04         0014         145              RET
                    0015         146
                    0015         147      ;+
```

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```
                        0015    148 ; MINF returns smallest of the REAL*4 args.
                        0015    149 ;-
                        0015    150
                        0015    151 MINF:
        51  6C   9A     0015    152          MOVZBL  (AP), R1          ; R1 = number of args
            8C   D5     0018    153          TSTL    (AP)+             ; AP -> first arg adr
        50  9C   50     001A    154 1$:      MOVF    @(AP)+, R0        ; get trial min
            08   11     001D    155          BRB     3$                ; check arg count
    50  00 BC   51     001F    156 2$:      CMPF    @0(AP),R0         ; if this arg is less then trial min
            F5   19     0023    157          BLSS    1$                ; then it becomes trial min
            8C   D5     0025    158          TSTL    (AP)+             ; else ignore it
        F5 51   F5     0027    159 3$:      SOBGTR  R1, 2$            ; check arg count
                 05     002A    160          RSB
                        002B    161
                        002B    162
                        002B    163          .END
```

```
MINF            00000015 R    01
MTH$AMIN1       00000010 RG   01
MTH$IMIN1       00000000 RG   01
MTH$JMIN1       00000008 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	0000002B (	43.)	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	00:00:01.50
Command processing	133	00:00:00.55	00:00:03.54
Pass 1	68	00:00:00.46	00:00:02.71
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	44	00:00:00.38	00:00:01.59
Symbol table output	2	00:00:00.02	00:00:00.11
Psect synopsis output	2	00:00:00.02	00:00:00.02
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	282	00:00:01.53	00:00:09.47

The working set limit was 750 pages.
1762 bytes (4 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 4 non-local and 3 local symbols.
163 source lines were read in Pass 1, producing 16 object records in Pass 2.
0 pages of virtual memory were used to define 0 macros.

```
                         +------------------------------+
                         ! Macro library statistics !
                         +------------------------------+
```

Macro library name	Macros defined
_255DUA28:[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$:MTHMIN1/OBJ=OBJ$:MTHMIN1 MSRC$:MTHMIN1/UPDATE=(ENH$:MTHMIN1)

MTHJMIN0
LIS

MTHMSG
LIS

MTHIMIN0
LIS

MTHMAX1
LIS

MTHJIDNNT
LIS

MTHMSGDEF
LIS

MTHJIHNNT
LIS

MTHSGN
LIS

MTHJMAX0
LIS

MTHMOD
LIS

MTHSIGNAL
LIS

MTHSQRTR2
LIS

MTHJNINT
LIS

MTHSINCOS
LIS

MTHSQRT
LIS

MTHININT
LIS

MTHRANDOM
LIS

MTHJIGNNT
LIS

MTHMINI
LIS

MTHJISIGN
LIS

MTHSIGN
LIS

MTHSINH
LIS