


```

MM      MM      TTTTTTTTTT  HH      HH      CCCCCCCC  DDDDDDDD  LL      000000  GGGGGGGG
MM      MM      TTTTTTTTTT  HH      HH      CCCCCCCC  DDDDDDDD  LL      000000  GGGGGGGG
MMMM    MMMM    TT          HH      HH      CC          DD          DD      LL      GG
MMMM    MMMM    TT          HH      HH      CC          DD          DD      LL      GG
MM      MM      TT          HH      HH      CC          DD          DD      LL      GG
MM      MM      TT          HH      HH      CC          DD          DD      LL      GG
MM      MM      TT          HHHHHHHHHH  CC          DD          DD      LL      GG
MM      MM      TT          HHHHHHHHHH  CC          DD          DD      LL      GG
MM      MM      TT          HH      HH      CC          DD          DD      LL      GG
MM      MM      TT          HH      HH      CC          DD          DD      LL      GG
MM      MM      TT          HH      HH      CC          DD          DD      LL      GG
MM      MM      TT          HH      HH      CC          DD          DD      LL      GG
MM      MM      TT          HH      HH      CCCCCCCC  DDDDDDDD  LLLLLLLLLL  000000  GGGGGG
MM      MM      TT          HH      HH      CCCCCCCC  DDDDDDDD  LLLLLLLLLL  000000  GGGGGG

```

```

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) 51
(3) 60
(4) 89

HISTORY ; Detailed Current Edit History
DECLARATIONS
MTH\$CDLOG

```
0000 1 .TITLE MTH$CDLOG D COMPLEX*16 Natural Logarithm
0000 2 .IDENT /1-003/ ; File: MTHCDLOG.MAR Edit: SBL1003
0000 3
0000 4
0000 5
0000 6 *****
0000 7 *
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0000 25 *
0000 26 *
0000 27 *****
0000 28
0000 29
0000 30
0000 31 FACILITY: MATH LIBRARY
0000 32 ++
0000 33 ABSTRACT:
0000 34
0000 35 This module contains routine MTH$CDLOG - perform D COMPLEX*16 log
0000 36
0000 37 --
0000 38
0000 39 VERSION: 1
0000 40
0000 41 HISTORY:
0000 42
0000 43 AUTHOR:
0000 44 Steven B. Lionel, 20-July-1979
0000 45
0000 46 MODIFIED BY:
0000 47
0000 48
0000 49
```

0000 51 .SBTTL HISTORY ; Detailed Current Edit History
0000 52
0000 53
0000 54 ; Edit History
0000 55 ;
0000 56 ; 1-001 - Adapted from MTH\$CLOG version 1-002. SBL 20-July-1979
0000 57 ; 1-002 - Changed shared external references to G^ RNH 25-Sep-81
0000 58 ; 1-003 - Use general mode addressing. SBL 30-Nov-1981

```
0000 60          .SBTTL  DECLARATIONS
0000 61
0000 62 :
0000 63 : INCLUDE FILES:
0000 64 :
0000 65
0000 66 :
0000 67 : EXTERNAL SYMBOLS:
0000 68          .DSABL  GBL
0000 69          .EXTRN  MTH$DATAN2
0000 70          .EXTRN  MTH$CDABS
0000 71          .EXTRN  MTH$DLOG_R8
0000 72
0000 73 :
0000 74 : MACROS:
0000 75 :     NONE
0000 76 :
0000 77 :
0000 78 : PSECT DECLARATIONS:
0000 79 :
00000000 80          .PSECT  _MTH$CODE          PIC, SHR, LONG, EXE, NOWRT
0000 81
0000 82 :
0000 83 : EQUATED SYMBOLS:
0000 84 :
0000 85 :
0000 86 : OWN STORAGE:
0000 87 :     NONE
```

```

0000 89      .SBTTL MTH$CDLOG
0000 90
0000 91      :++
0000 92      : FUNCTIONAL DESCRIPTION:
0000 93      :
0000 94      :   The Natural Logarithm of a complex number (r, i) is
0000 95      :   computed as follows:
0000 96      :
0000 97      :           CLOG(arg) = (LOG(CABS(arg)), ATAN2(arg))
0000 98      :
0000 99      : CALLING SEQUENCE:
0000 100     :   CALL MTH$CDLOG (result.wdc.r, arg.rdc.r)
0000 101     :
0000 102     : INPUT PARAMETERS:
0000 103     :
00000008 0000 104     :   arg = 8 ; Argument by reference, a D COMPLEX*16
0000 105     : ; value.
0000 106     :
0000 107     : IMPLICIT INPUTS:
0000 108     :   NONE
0000 109     :
0000 110     : OUTPUT PARAMETERS:
0000 111     :
00000004 0000 112     :   result = 4 ; Result by reference, a D COMPLEX*16
0000 113     : ; value.
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     :   Signals Reserved Operand if the input parameter is bad (-0.0)
0000 123     :
0000 124     :--
0000 125
0000 126
01FC 0000 127     .ENTRY MTH$CDLOG, ^M<R2,R3,R4,R5,R6,R7,R8>
0002 128     MTH LAG_JACKET ; set up error handler
0002
6D 00000000'GF 9E 0002     MOVAB G^MTH$$JACKET_HND, (FP)
0009 ; set handler address to jacket
0009 ; handler
0009
50 08 AC D0 0009 129     MOVL arg(AP), R0 ; R0 -> (arg)
80 7F C00B 130     PUSHAD (R0)+ ; push addr(r)
50 DD 000F 131     PUSHL R0 ; push addr(i)
00000000'GF 02 FB 0011 132     CALLS #2, G^MTH$DATAN2 ; R0-R1 = DATAN2(arg)
7E 50 7D 0018 133     MOVQ R0, -(SP) ; Save ATAN2(arg)
08 AC DD 001B 134     PUSHL arg(AP) ; Get CABS(arg)
00000000'GF 01 FB 001E 135     CALLS #1, G^MTH$CDABS ; Get CABS(arg)
00000000'GF 16 G025 136     JSB G^MTH$DLOG_R8 ; R0-R1 gets LOG(CABS(arg))
52 04 AC D0 002B 137     MOVL result(AP), R2 ; Address of result
82 50 7D 002F 138     MOVQ R0, (R2)+ ; Real part of result
62 8E 7D 0032 139     MOVQ (SP)+, (R2) ; Imaginary part of result
04 0035 140     RET

```

MTH\$CDLOG
1-003

D COMPLEX*16 Natural Logarithm
MTH\$CDLOG

C 1

16-SEP-1984 01:07:02 VAX/VMS Macro V04-00
6-SEP-1984 11:20:51 [MTHRTL.SRC]MTHCDLOG.MAR;1

Page 5
(4)

MT
1-

0036 141
0036 142
0036 143 .END


```

ARG = 00000008
MTH$$JACKET_HND ***** X 01
MTH$CDABS ***** X 00
MTH$CDLOG 00000000 RG 01
MTH$DATAN2 ***** X 00
MTH$DLOG_R8 ***** X 00
RESULT = 00000004

```

```

+-----+
! Psect synopsis !
+-----+

```

PSECT name	Allocation	PSECT No.	Attributes
. ABS	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORO NOWRT NOVEC BYTE
_MTH\$CODE	00000036 (54.)	01 (1.)	PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC LONG

```

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

```

Phase	Page faults	CPU Time	Elapsed Time
Initialization	33	00:00:00.06	00:00:00.53
Command processing	130	00:00:00.66	00:00:03.50
Pass 1	81	00:00:00.59	00:00:03.37
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	40	00:00:00.45	00:00:01.96
Symbol table output	2	00:00:00.00	00:00:00.02
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	290	00:00:01.80	00:00:09.42

The working set limit was 900 pages.
 2259 bytes (5 pages) of virtual memory were used to buffer the intermediate code.
 There were 10 pages of symbol table space allocated to hold 7 non-local and 0 local symbols.
 203 source lines were read in Pass 1, producing 11 object records in Pass 2.
 1 page of virtual memory was used to define 1 macro.

```

+-----+
! 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\$:MTHCDLOG/OBJ=OBJ\$:MTHCDLOG MSRC\$:MTHJACKET/UPDATE=(ENH\$:MTHJACKET)+MSRC

0257 AH-BT13A-SE
VAX/VMS V4.0

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The image displays a grid of 100 small terminal window screenshots, each representing a different menu or data screen from the VAX/VMS V4.0 software. The screens are arranged in a 10x10 grid. Many screens feature a title bar at the top, followed by a header section, and then a main body of text, often containing lists of items or data tables. Some screens include graphical elements like vertical bars or small diagrams. The overall appearance is that of a dense collection of user interface elements from a mainframe or early personal computer operating system.

Key visible labels on the screens include:

- MTH4OVP LIS
- MTHABS LIS
- MTHINT LIS
- MTHAMOD LIS
- MTHERR SOL
- MTHASIN LIS
- MTHCDABS LIS
- MTHATAN LIS
- MTHATANH LIS
- MTHCDLOG LIS
- MTHBITOPS LIS
- MTHALOG LIS
- MTHJACKET MAR
- MTHDEF FOR
- MTHACOS LIS
- MTHANT LIS
- MTHCABS LIS
- MTHCDEXP LIS

0258 AH-BT13A-SE
VAX/VMS V4.0

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