


```

MM      MM  P P P P P P P P  D D D D D D D D  A A A A A A  T T T T T T T T T T
MM      MM  P P P P P P P P  D D D D D D D D  A A A A A A  T T T T T T T T T T
MMMM    MMMM PP          PP  DD      DD  AA      AA  TT          TT
MMMM    MMMM PP          PP  DD      DD  AA      AA  TT          TT
MM      MM  PP          PP  DD      DD  AA      AA  TT          TT
MM      MM  PP          PP  DD      DD  AA      AA  TT          TT
MM      MM  P P P P P P P P  DD      DD  AA      AA  TT          TT
MM      MM  P P P P P P P P  DD      DD  AA      AA  TT          TT
MM      MM  PP          PP  DD      DD  A A A A A A A A  TT          TT
MM      MM  PP          PP  DD      DD  A A A A A A A A  TT          TT
MM      MM  PP          PP  DD      DD  AA      AA  TT          TT
MM      MM  PP          PP  DD      DD  AA      AA  TT          TT
MM      MM  PP          PP  D D D D D D D D  AA      AA  TT          TT
MM      MM  PP          PP  D D D D D D D D  AA      AA  TT          TT

```

```

LL      I I I I I I  S S S S S S S S
LL      I I I I I I  S S S S S S S S
LL      I I          S S
LL      I I          S S
LL      I I          S S
LL      I I          S S
LL      I I          S S S S S S
LL      I I          S S S S S S
LL      I I          S S
LL      I I          S S
LL      I I          S S
LL      I I          S S
LLLLLLLLLLLL  I I I I I I  S S S S S S S S
LLLLLLLLLLLL  I I I I I I  S S S S S S S S

```

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Interrupt Stack for Secondary processor

```
0000 1 :  
0000 2 : Version: 'V04-000'  
0000 3 :  
0000 4 :  
0000 5 : .MCALL MFPR  
0000 6 : .TITLE MPDAT - MULTI-PROCESSING DATA BASE  
0000 7 : .IDENT 'V04-000'  
0000 8 :  
0000 9 : *****  
0000 10 : *  
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0000 28 : *  
0000 29 : * *****  
0000 30 : *  
0000 31 : ++  
0000 32 : Facility: Executive , Multi-processing data base  
0000 33 : Abstract: Data base of multi-processing information  
0000 34 : Environment: MODE=Kernel  
0000 35 : Author: Kathleen D. Morse, Creation date: 08-Jul-1981  
0000 36 :  
0000 37 : Modified by:  
0000 38 :  
0000 39 : V03-005 KDM0020 Kathleen D. Morse 04-Oct-1982  
0000 40 : Add a counter and error log message for the invalidate  
0000 41 : loop time-out logic.  
0000 42 :  
0000 43 : V03-074 KDM0012 Kathleen D. Morse 20-Sep-1982  
0000 44 : Add second error log buffer.  
0000 45 :  
0000 46 :  
0000 47 :  
0000 48 :  
0000 49 : 01 -  
0000 50 : --
```

```
0000 52 :  
0000 53 : Mac o Library Calls  
0000 54 :  
0000 55 :  
0000 56 $CADEF ; Define conditional assembly parameters  
0000 57 $EMBDEF ; Define error message buffer header  
0000 58 $MPSDEF ; Define secondary processor states  
0000 59 :  
0000 60 :  
0000 61 : Equated Symbols  
0000 62 :  
0000 63 :  
0000 64 :  
0000 65 : Local Data  
0000 66 :  
0000 67 :  
00000000 68 .PSECT $$$MPDATA, LONG, WRT  
0000 69 :  
0000 70 :  
0000 71 .ALIGN LONG  
0000 72 :  
0000 73 : Major pointers - Initialized by MLOAD  
0000 74 :  
0000 75 MP$SAL_MPMBASE:: ; Base VA of multiport memory registers  
00000000 0000 76 .LONG 0  
00000000 0004 77 .LONG 0  
00000000 0008 78 .LONG 0  
00000000 000C 79 .LONG 0  
00000000 0010 80 MP$SGL_CURPCB:: ; Secondary processor current PCB  
00000000 0010 81 .LONG SCH$GL_NULLPCB  
00000005 0014 82 MP$SGL_STATE:: ; State of secondary processor  
00000005 0014 83 .LONG MP$K_INITSTATE ; Initially set to INIT state  
0018 84 :  
0018 85 : 1 => Idle  
0018 86 : 2 => Drop; CURPCB correct  
0018 87 : (SVPCTX done)  
0018 88 : 3 => Busy; CURPCB correct  
0018 89 : (LDPCTX not yet done)  
0018 90 : 4 => Execute; CURPCB correct  
0018 91 : (LDPCTX done)  
0018 92 : 5 => Init  
0018 93 : 6 => Stop  
0018 94 :  
00000000 0018 95 MP$SGL_PRIMSKC:: ; Primary processor interrupt clear  
00000000 001C 96 .LONG 0  
00000000 001C 97 MP$SGL_PRIMSKT:: ; Primary processor interrupt trigger  
00000000 0020 98 .LONG 0  
00000000 0020 99 MP$SGL_SCNDMSKC:: ; Secondary processor interrupt clear  
00000000 0024 100 .LONG 0  
00000000 0024 101 MP$SGL_SCNDMSKT:: ; Secondary processor interrupt trigger  
00000000 0028 102 .LONG 0  
00000000 0028 103 MP$SGL_INVALID:: ; Invalidate address  
00000000 002C 104 .LONG 0  
00000000 002C 105 MP$SGL_MPMIIR:: ; MA780 interrupt request register adr  
00000000 0030 106 .LONG 0  
00000000 0030 107 MP$SGL_BUGCHECK:: ; Indicator for bugcheck status  
00000000 0030 108 .LONG 0
```

```

00000000 0034 109 MPSSGL_STOPFLAG::      ; Indicator for STOP/CPU requests
00000000 0034 110 .LONG 0
00000000 0038 111 MPSSGL_INTERLOCK::      ; Interlock used to flush cache
00000000 0038 112 .LONG 0
00000000 003C 113 MPSSGL_PFAILTIM::          ; Indicator if powerfail in progress
00000000 003C 114 .LONG 0
00000000 0040 115
00000000 0040 116
00000000 0040 117 MPSSGL_SECREQFLG::      ; Indicator for secondary requests
00000000 0040 118 .LONG 0
00000000 0044 119
00000000 0044 120 MPSSGL_ERLBUFIND::          ; Secondary error log buffer indicator
00000000 0044 121 .LONG 0
00000000 0048 122
00000000 0048 123
00000000 0048 124 MPSSGL_ERLSEQNUM::      ; Secondary error log sequence number
00000000 0048 125 .LONG 0
00000000 004C 126
00000000 004C 127 MPSSGL_SAVEDAP::          ; Saved value of secondary AP
00000000 004C 128 .LONG 0
00000000 0050 129
00000000 0050 130 MPSSGL_MPSTRTIM::          ; 64-bit time and date when multi-
00000000 0050 131 .LONG 0
00000000 0054 132 .LONG 0
00000000 0058 133 MPSSGL_INV_NACK::          ; Indicator that secondary did not
00000000 0058 134 .LONG 0
00000000 005C 135
00000000 005C 136
00000000 005C 137 ; Secondary Timer Performance Statistics
00000000 005C 138
00000000 005C 139
00000002 005C 140 .IF NE CAS_MEASURE          ; Check for measurement enabled
00000002 005C 141
00000002 005C 142 .ALIGN LONG
00000002 005C 143 MPSSAL_CPUTIME::          ; Performance measurement array for
00000002 005C 144
00000000 005C 145 .LONG 0
00000000 0060 146 .LONG 0
00000000 0064 147 .LONG 0
00000000 0068 148 .LONG 0
00000000 006C 149 .LONG 0
00000000 0070 150 .LONG 0
00000000 0074 151
00000000 0074 152 MPSSGL_NULLCPU::          ; Null process cpu time
00000000 0074 153 .LONG 0
00000000 0078 154
00000000 0078 155 .ENDC
00000000 0078 156
00000000 0078 157
00000000 0078 158 ; The following is error log text that the primary writes into the
00000000 0078 159 ; error log as system service type entries...merely ASCII text.
00000000 0078 160
00000000 0078 161 MPSSST_INV_NACK::
00000000 0078 162 .ASCII \Attached processor did not acknowledge invalidate request.\

```

```

6F 72 70 20 64 65 68 63 61 74 74 41 0078
6E 20 64 69 64 20 72 6F 73 73 65 63 0084
64 65 6C 77 6F 6E 6B 63 61 20 74 6F 0090
74 61 64 69 6C 61 76 6E 69 20 65 67 009C

```

MP
VA
Th
17
15
Ma
--
-s
-s
-s
TO
36
Th
MA

```

6D 65 2E 74 73 65 75 71 65 72 20 65 00A8
65 64 74 73 79 73 20 65 68 54 20 20 00B2
20 61 20 6E 65 65 62 20 73 61 68 20 00BE
38 37 2F 31 31 20 65 6C 67 6E 69 73 00CA
                                00D6
                                2E 30 00E2
                                0000006C 00E4
                                00E4
                                00E4
                                00E4
                                00E4
                                00E4
                                00E4
00000000 171
00000004 0000 172
00000200 0004 173
00000004 0200 174
00000400 0204 175
                                0400 176
                                0400 177
                                0400 178
                                0400 179

```

163 .ASCII \ The system has been degraded to a single 11/780.\

164 MPSSC_INV_NACK == . - MPSST_INV_NACK

```

165
166 :
167 : The following data does not fit into the header page
168 : of the multi-processing code, and therefore is positioned
169 : after the secondary's SCB.
170 :

```

```

171 .PSECT $$$ERLBUF,QUAD,WRT
172 .LONG EMB$K_LENGTH ; Error log message buffer header
173 MP$SAL_ERLBUF1:: ; Secondary error log buffer 1
174 .BLKB MP$S$K_ERLBUFSIZ-EMB$K_LENGTH ; (Holds 1 message of maximum size)
175 .LONG EMB$K_LENGTH ; Error log message buffer header
176 MP$SAL_ERLBUF2:: ; Secondary error log buffer 2
177 .BLKB MP$S$K_ERLBUFSIZ-EMB$K_LENGTH ; (Holds 1 message of maximum size)
178
179

```

```
0400 181 .SBTTL Interrupt Stack for Secondary processor
0400 182 :
0400 183 : Interrupt stack reservation for secondary processor
0400 184 :
00000000 185 .PSECT $$$INTSTK, LONG, WRT
0000 186 .ALIGN LONG
00000400 0000 187 .BLKB 512*2 ; 2 Pages
0400 188 MPSSAL_INTSTK:: ; Empty stack pointer
0400 189 .END
```


MPDAT
Symbol table

- MULTI-PROCESSING DATA BASE

M 1

16-SEP-1984 02:00:27 VAX/VMS Macro V04-00
5-SEP-1984 02:06:11 [MP.SRC]MPDAT.MAR;1

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(1)

```

CAS MEASURE           = 00000002
EMBSK LENGTH         = 00000004
MPSSAC_CPUIME        0000005C RG    02
MPSSAL_ERLBUF1       00000004 RG    03
MPSSAL_ERLBUF2       00000204 RG    03
MPSSAL_INTSTK        00000400 RG    04
MPSSAL_MPMBASE       00000000 RG    02
MPSSC_INV_NACK       = 0000006C G
MPSSGL_BUGCHECK      00000030 RG    02
MPSSGL_CURPCB        00000010 RG    02
MPSSGL_ERLBUFIND     00000044 RG    02
MPSSGL_ERLSEQNUM     00000048 RG    02
MPSSGL_INTERLOCK     00000038 RG    02
MPSSGL_INVALID       00000028 RG    02
MPSSGL_INV_NACK      00000058 RG    02
MPSSGL_MPMIIR        0000002C RG    02
MPSSGL_NULLCPU       00000074 RG    02
MPSSGL_PFAILTIM     0000003C RG    02
MPSSGL_PRIMSKC       00000018 RG    02
MPSSGL_PRIMSKT       0000001C RG    02
MPSSGL_SAVEDAP       0000004C RG    02
MPSSGL_SCNDMSKC      00000020 RG    02
MPSSGL_SCNDMSKT      00000024 RG    02
MPSSGL_SECREQFLG     00000040 RG    02
MPSSGL_STATE         00000014 RG    02
MPSSGL_STOPFLAG     00000034 RG    02
MPSSGL_MPSTRTIM      00000050 RG    02
MPSSK_ERLBUFSIZ     = 00000200
MPSSK_INITSTATE     = 00000005
MPSSY_INV_NACK       00000078 RG    02
SCHSGC_NUCLPCB      ***** X 02
  
```

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

| PSECT name | Allocation | PSECT No. | Attributes |
|--------------|-------------------|-----------|--|
| . ABS . | 00000000 (0.) | 00 (0.) | NOIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE |
| \$ABS\$ | 00000000 (0.) | 01 (1.) | NOIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE |
| \$\$\$MPDATA | 000000E4 (228.) | 02 (2.) | NOIC USR CON REL LCL NOSHR EXE RD WRT NOVEC LONG |
| \$\$\$ERLBUF | 00000400 (1024.) | 03 (3.) | NOIC USR CON REL LCL NOSHR EXE RD WRT NOVEC QUAD |
| \$\$\$INTSTK | 00000400 (1024.) | 04 (4.) | NOIC USR CON REL LCL NOSHR EXE RD WRT NOVEC LONG |

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

| Phase | Page faults | CPU Time | Elapsed Time |
|-----------------------|-------------|-------------|--------------|
| Initialization | 32 | 00:00:00.10 | 00:00:00.56 |
| Command processing | 155 | 00:00:00.95 | 00:00:06.06 |
| Pass 1 | 164 | 00:00:02.68 | 00:00:09.60 |
| Symbol table sort | 0 | 00:00:00.16 | 00:00:00.17 |
| Pass 2 | 52 | 00:00:00.73 | 00:00:02.44 |
| Symbol table output | 5 | 00:00:00.03 | 00:00:00.07 |
| Psect synopsis output | 2 | 00:00:00.03 | 00:00:00.03 |

| | | | |
|------------------------|-----|-------------|-------------|
| Cross-reference output | 0 | 00:00:00.00 | 00:00:00.00 |
| Assembler run totals | 412 | 00:00:04.68 | 00:00:18.93 |

The working set limit was 1050 pages.
10468 bytes (21 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 168 non-local and 0 local symbols.
194 source lines were read in Pass 1, producing 18 object records in Pass 2.
15 pages of virtual memory were used to define 14 macros.

↑-----↑
! Macro library statistics !
↑-----↑

| Macro library name | Macros defined |
|-------------------------------------|----------------|
| -\$255\$DUA28:[MP.OBJ]MP.MLB;1 | 2 |
| -\$255\$DUA28:[SYS.OBJ]LIB.MLB;1 | 6 |
| -\$255\$DUA28:[SYSLIB]STARLET.MLB;2 | 3 |
| TOTALS (all libraries) | 11 |

257 GETS were required to define 11 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LISS:MPDAT/OBJ=OBS:MPDAT MSRCS:MPPREFIX/UPDATE=(ENHS:MPPREFIX)+MSRCS:MPDAT/UPDATE=(ENHS:MPDAT)+EXECMLS/LIB+LIBS:MP.MLB/LI

0248 AH-BT13A-SE
VAX/VMS V4.0

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The image displays a grid of 100 small terminal window screenshots, arranged in a 10x10 grid. Each window shows a different VAX/VMS utility or command output. The windows are arranged in a 10x10 grid. Some windows have titles like 'MPERRLOG LIS', 'MPCBVEC LIS', 'MPINT LIS', 'MPPFM LIS', 'MPPWRFAIL LIS', 'MPPCHECK LIS', 'MPINTEXC LIS', 'MPLOG LIS', 'MPPERMSG LIS', 'MPSCHED LIS', 'MPSHWPFM LIS', and 'MLOAD LIS'. Each window contains text-based data, including lists, tables, and status information.