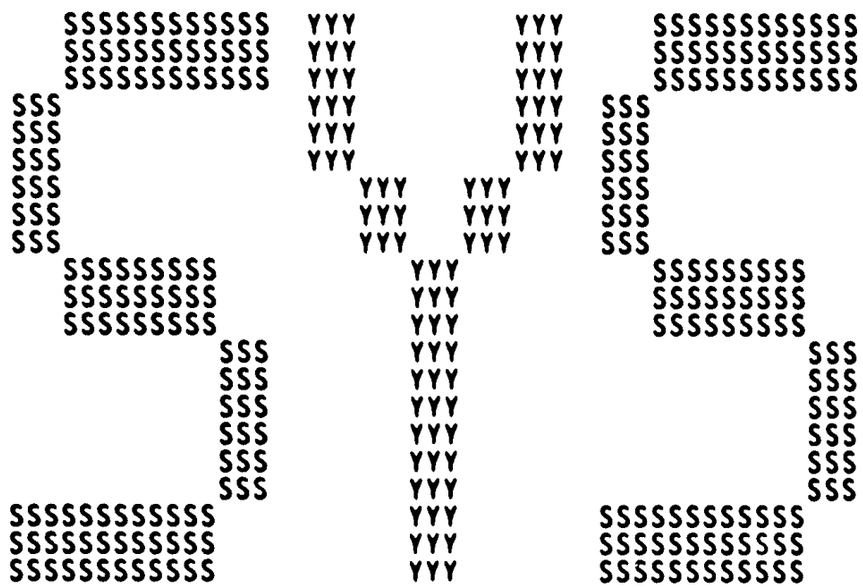

FILEID**SPTSKEL

```
  SSSSSSSS  PPPPPPPP    TTTTTTTTTT    SSSSSSSS  KK      KK  EEEEEEEEEE  LL
  SSSSSSSS  PPPPPPPP    TTTTTTTTTT    SSSSSSSS  KK      KK  EEEEEEEEEE  LL
SS          PP      PP      TT      SS          KK      KK  EE          LL
SS          PP      PP      TT      SS          KK    KK    EE          LL
SS          PP      PP      TT      SS          KK    KK    EE          LL
SS          PP      PP      TT      SS          KK  KK      EE          LL
  SSSSSS    PPPPPPPP        TT        SSSSSS    KKKKKK      EEEEEEEE    LL
  SSSSSS    PPPPPPPP        TT        SSSSSS    KKKKKK      EEEEEEEE    LL
        SS  PP              TT              SS  KK    KK    EE          LL
        SS  PP              TT              SS  KK    KK    EE          LL
        SS  PP              TT              SS  KK      KK  EE          LL              ....
        SS  PP              TT              SS  KK      KK  EE          LL              ....
SSSSSSSS    PP              TT      SSSSSSSS    KK      KK  EEEEEEEEEE  LLLLLLLLLL      ....
SSSSSSSS    PP              TT      SSSSSSSS    KK      KK  EEEEEEEEEE  LLLLLLLLLL      ....


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
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

Table of contents

```
00000001  0000      1          PRMSW=1                         ; SET SWITCH TO GENERATE PARAMETER DESCRIPTO
```

```
0000     1          .IF     NDF,PRMSW       ;
0000     2          .TITLE  MDAT            ;MEMORY MANAGEMENT DATA BASE
0000     3          .IFF                    ;
0000     4          .TITLE  SPTSKEL - SKELETON SYSTEM PAGE TABLE
0000     5          .ENDC                   ;
0000     6          .IDENT  'V04-000'
0000     7  ;
0000     8  ;*****************************************************************************
0000     9  ;*                                                                           *
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0000    27  ;*                                                                           *
0000    28  ;*                                                                           *
0000    29  ;*****************************************************************************
0000    30
0000    31  ;++
0000    32  ; FACILITY:     EXECUTIVE,  MEMORY MANAGEMENT DATA BASE
0000    33  ;
0000    34  ; ABSTRACT:     MDAT ALLOCATES AND INITIALIZES THE STORAGE FOR THE
0000    35  ;       MEMORY MANAGEMENT DATA BASES. IT IS ASSEMBLED IN TWO FORMS
0000    36  ;       ONE TO PRODUCE A SKELETON SPT AND THE OTHER TO PRODUCE THE SYSTEM
0000    37  ;       MEMORY MANAGEMENT DATA STRUCTURES.
0000    38  ;
0000    39  ; ENVIRONMENT:
0000    40  ;
0000    41  ;--
0000    42  ;
0000    43          .SBTTL  HISTORY                 ; DETAILED
0000    44  ;
0000    45  ; AUTHOR: RICHARD I. HUSTVEDT    , CREATION DATE: 18-MAY-1978
0000    46  ;
0000    47  ; MODIFIED BY:
0000    48  ;
0000    49  ;       V03-007 WHM0001         Bill Matthews           02-May-1984
0000    50  ;               Make PAT$A_NONPGD_CODE_END global for use by SYSBOOT to
0000    51  ;               initial MMG$GL_PGDCOD.
0000    52  ;
0000    53  ;       V03-006 LJK0273         Lawrence J. Kenah       10-Apr-1984
0000    54  ;               Only set a single page to UREW to hold file system statistics.
0000    55  ;               Add cells to hold base addresses of various loadable images.
0000    56  ;               Remove cells added for MWAIT measurements.
0000    57  ;
```

```
0000     58 ;       V03-005 RLRSCORP        Robert L. Rappaport     17-Feb-1984
0000     59 ;               Added EXE$GL_CPUNODSP, a pointer to the virtual address
0000     60 ;               that maps node private space on a BI. For a BI processor,
0000     61 ;               such as KDZ-11, this allows access to processor internal
0000     62 ;               registers.  Also added EXE$GQ_GBLHOOK1 - EXE$GQ_GBLHOOKA,
0000     63 ;               global symbols each of which defines a quadword of data.
0000     64 ;               These can be used as hooks to facilitate adding support for
0000     65 ;               new hardware between major releases.  Also add three more
0000     66 ;               pages of extra patch area for a total of six such pages.
0000     67 ;
0000     68 ;       V03-004 KPL0101         Peter Lieberwirth       1-Feb-1984
0000     69 ;               I was talked into changing CONFREG1 to CONFREGL, since
0000     70 ;               CONFREGL is a more descriptive name.
0000     71 ;
0000     72 ;       V03-003 KPL0100         Peter Lieberwirth       30-Jan-1984
0000     73 ;               Add cell to point to new CONFREG array, called CONFREG1.
0000     74 ;               Eventually, all references in the system to CONFREG will
0000     75 ;               be changed to refer to the new format CONFREG1.  At that
0000     76 ;               time, the extra CONFREG cell can be deleted.
0000     77 ;
0000     78 ;       V03-002 SSA0005         Stan Amway              10-Jan-1984
0000     79 ;               Reserved 148 bytes in non-paged data patch area for
0000     80 ;               special MWAIT counters being maintained by code in
0000     81 ;               module MUTEX. This change will be backed out before
0000     82 ;               V4 release.
0000     83 ;
0000     84 ;       V03-001 LJK0159         Lawrence J. Kenah       9-Apr-1982
0000     85 ;               Include holes caused by page alignment into patch areas.
0000     86 ;               Change names of PSECTs and global labels to include
0000     87 ;               string "PATCH".
0000     88 ;
0000     89 ;       V02-013 LJK0095         Lawrence J. Kenah       3-Dec-1981
0000     90 ;               Move definition of label that marks boundary between
0000     91 ;               nonpaged and pageable executive to SYSPARAM so that
0000     92 ;               cell containing the boundary is accessible to SYSBOOT.
0000     93 ;
0000     94 ;       V02-012 LJK0078         Lawrence J. Kenah       6-Nov-1981
0000     95 ;               Increase size of read-only (pageable and nonpaged) patch
0000     96 ;               areas to two pages each. Add two more pages that can be
0000     97 ;               used for either pageable or nonpaged patch area.
0000     98 ;
0000     99 ;       V02-011 LJK0074         Lawrence J. Kenah       6-Oct-1981
0000    100 ;               Point MMG$GL_RMSBASE to procedure that always returns success.
0000    101 ;               This prevents anamolous system failures when RMS is called
0000    102 ;               inadvertently before the RMS image is mapped.
0000    103 ;
0000    104 ;       V02-010 WMC0002         Wayne Cardoza           20-Aug-1981
0000    105 ;               Add MMG$GL_GBLPAGFIL to limit page file utilization for global
0000    106 ;               sections with page file backing store.
0000    107 ;
0000    108 ;       V02-009 WMC0001         Wayne Cardoza           12-Aug-1981
0000    109 ;               Add MMG$GL_GBLSECFND to assist in finding section tables for
0000    110 ;               global sections with page file backing store.
0000    111 ;
0000    112 ;       V02-008 HRJ0023         Herb Jacobs             06-Jul-1981
0000    113 ;               Indicate system process doesn't need swap space.
0000    114 ;
```

```
0000   115 ;       V02-007 LJK0030         Lawrence J. Kenah       28-May-1981
0000   116 ;               Add global labels for three arrays used by INIT for opcode
0000   117 ;               fixup that occurs at bootstrap time.
0000   118 ;
0000   119 ;       V02-006 HRJ0021         Herb Jacobs             10-May-1981
0000   120 ;               Fix historic reference to WSNEXT-1 to WSNEXT.
0000   121 ;
0000   122 ;       V02-005 TCM0001         Trudy C. Matthews       8-May-1981
0000   123 ;               Delete the definition of MMG$AL_SBICONF array.  Instead add
0000   124 ;               EXE$GL_CONFREG and MMG$GL_SBICONF, which hold the addresses
0000   125 ;               of the arrays (which are allocated in pool).
0000   126 ;               Add definition of EXE$GL_NUMNEXUS field, to hold number of
0000   127 ;               nexuses present on the system.
0000   128 ;
```

```
                        .SBTTL  DECLARATIONS

;
; INCLUDE FILES:
;
                        $DYNDEF                 ;DYNAMIC DATA STRUCTURE TYPE DEFINITIONS
                        $PHDDEF                 ;DEFINE PROCESS HEADER
                        $PTEDEF                 ;PAGE TABLE ENTRY DEFINTIONS
                        $SECDEF                 ;PSTE/GSTE DEFINITIONS
                        $SGNDEF                 ;DEFINE SYSGEN VALUES
                        $WSLDEF                 ;WORKING SET LIST DEFINITIONS
;
; EXTERNAL SYMBOLS:
;


;
; MACROS:
;
                        .MACRO  SYSPTE  NUM,ACCESS,PFN=0
                        .IF     DF,PRMSW
                        .PSECT  $$$065
                        .ENDC
                        .REPT   NUM
                        .IF     DF,PRMSW
                        .LONG   PTE$M_VALID!PTE$C_'ACCESS
                        .ENDC
                        PFN...=PFN...+1
                        SPTLEN=SPTLEN+1
                        .ENDR
                        .ENDM   SYSPTE

                        .MACRO  PHD     SYM
                        .=SAV...+PHD$'SYM
                        .ENDM   PHD

                        .MACRO  PCB     SYM
                        .=SAV...+PCB$'SYM
                        .ENDM   PCB

                        .LIST   MEB
;
; EQUATED SYMBOLS:
;
000001F8                        NPGDPATCH = 504                 ; ONE PAGE OF NONPAGED CODE PATCH AREA
000001F8                        NPGDRWPATCH = 504                ; ONE PAGE of NONPAGED DATA PATCH AREA
000003F8                        PGDPATCH = 504 + 512            ; TWO PAGES OF PAGED CODE PATCH AREA
00000C00                        PATCH_AREA = 6*512              ; SIX PAGES OF EXTRA PATCH AREA
;
; OWN STORAGE:
;

```

```
0000    182          .SBTTL  MEMORY MANAGEMENT DATA BASE
0000    183
0000    184          .IF     NDF,PRMSW                       ;
0000    185 ;
0000    186 ; PROCESS HEADER VECTOR
0000    187 ;
0000    188          .PSECT  $$$222,LONG
0000    189 PHV$GL_PIXBAS::                                  ;BASE OF PROCESS INDEX VECTOR
0000    190          .LONG   0                               ;
0000    191 PHV$GL_REFCBAS::                                 ;BASE OF PROCESS HDR REFERENCE COUNT VECTOR
0000    192          .LONG   0                               ;
0000    193
0000    194 ;
0000    195 ; Define Global Hooks
0000    196 ;
0000    197
0000    198 EXE$GQ_GBLHOOK1::
0000    199          .QUAD   0
0000    200 EXE$GQ_GBLHOOK2::
0000    201          .QUAD   0
0000    202 EXE$GQ_GBLHOOK3::
0000    203          .QUAD   0
0000    204 EXE$GQ_GBLHOOK4::
0000    205          .QUAD   0
0000    206 EXE$GQ_GBLHOOK5::
0000    207          .QUAD   0
0000    208 EXE$GQ_GBLHOOK6::
0000    209          .QUAD   0
0000    210 EXE$GQ_GBLHOOK7::
0000    211          .QUAD   0
0000    212 EXE$GQ_GBLHOOK8::
0000    213          .QUAD   0
0000    214 EXE$GQ_GBLHOOK9::
0000    215          .QUAD   0
0000    216 EXE$GQ_GBLHOOKA::
0000    217          .QUAD   0
0000    218 ;
0000    219 ; Define data to identify the nexus on a system.
0000    220 ;
0000    221 EXE$GL_CPUNODSP::                                 ; Holds virtual address that maps BI
0000    222          .LONG   0                               ;  Node Private Space.  Used only for
0000    223                                                  ;  Scorpio, and allows access to Port
0000    224                                                  ;  Controler, Watch Chip, and RX50
0000    225                                                  ;  registers.
0000    226 EXE$GL_CONFREGL::                                ; Holds the address of a longword array
0000    227          .LONG   0                               ; of nexus device types.
0000    228 EXE$GL_CONFREG::                                 ; Holds the address of a byte array
0000    229          .LONG   0                               ; of nexus-device types.
0000    230 MMG$GL_SBICONF::                                 ; Holds the address of a longword
0000    231          .LONG   0                               ; array of nexus slot VAs.
0000    232 EXE$GL_NUMNEXUS::                                ; Number of nexuses present on system.
0000    233          .LONG   0
0000    234
0000    235 ; The following cell contains the base address of the RMS image
0000    236
0000    237 MMG$GL_RMSBASE::                                 ; Base of RMS image
0000    238          .ADDRESS        EXE$SUCCESS             ; This procedure always succeeds
```

```
                                H 16
0000    239
0000    240 ; The following cells contain the base addresses of various images
0000    241 ; that may be loaded when the system is started.
0000    242
0000    243 MMG$GL_FPEMUL_BASE::                    ; Base address of folating point
0000    244         .LONG   0                       ;  instruction emulator
0000    245
0000    246 MMG$GL_SYSLOA_BASE::                    ; Base address of SYSLOAzzz.EXE
0000    247         .LONG   0
0000    248
0000    249 MMG$GL_VAXEMUL_BASE::                   ; Base addres of decimal/string
0000    250         .LONG   0                       ;  instruction emulator
0000    251
0000    252 MMG$GL_GBLSECFND::                      ; Last global section table entry found
0000    253         .LONG   0                       ; when deleting page file backing store addr
0000    254 MMG$GL_GBLPAGFIL::
0000    255         .LONG   -1                      ; page file allowed (remaining) for global s
0000    256         .ENDC                           ;
```

```
                     0000   258          .SBTTL  SYSTEM HEADER AND PAGE TABLE
                     0000   259 ;-----------------------------------------------------------------
                     0000   260 ;
                     0000   261 ;       SYSTEM HEADER / SYSTEM WORKING SET LIST / SYSTEM PAGE TABLE
                     0000   262 ;
                     0000   263 ;-----------------------------------------------------------------
                     0000   264          .IF     DF,PRMSW                        ;
                00000000    265          .PSECT  $$$063,PAGE                     ; PAGE ALIGNED
                     0000   266
                     0000   267 BOO$A_SYSPHD::                                  ; SYSTEM PROCESS HEADER
00000000             0000   268          SAV...=.                                ; REFERENCE POINT FOR FILLING PHD
0000017C             0000   269          .BLKB   PHD$C_LENGTH                    ; RESERVE SPACE FOR IT
0000017C             017C   270 SYSPHDEND=.                                      ; MARK END OF PHD
                     017C   271
0000005F             017C   272 WSL...=<.-SAV...>@-2                           ; LONGWORD INDEX TO FIRST WS ENTRY
                     017C   273          PHD     W_WSLOCK                        ; POINTER TO START OF LOCKED PAGES
0000000C             017C                .=SAV...+PHD$W_WSLOCK
    005F             000C   274          .WORD   WSL...                          ;
                     000E   275
                     000E   276          PHD     W_WSDYN                         ; POINTER TO START OF DYNAMIC WS
    005F             000E   277          .WORD   WSL...                          ;
                     0010   278
                     0010   279          PHD     W_WSLIST                        ; START OF WORKING SET LIST
00000008             0010                .=SAV...+PHD$W_WSLIST
    005F             0008   280          .WORD   WSL...                          ;
                     000A   281
                     000A   282          PHD     W_WSNEXT                        ; NEXT WORKING SET ENTRY
00000010             000A                .=SAV...+PHD$W_WSNEXT
    005F             0010   283          .WORD   WSL...                          ;
                     0012   284
                     0012   285          PHD     L_FREP1VA                       ; SMALLEST VA IN P1 SPACE (EMPTY)
00000030             0012                .=SAV...+PHD$L_FREP1VA
FFFFFFFF             0030   286          .LONG   -1
                     0034   287
                     0034   288          PHD     W_EXTDYNWS                      ; EXTRA DYNAMIC WORKING SET LIST
00000076             0034                .=SAV...+PHD$W_EXTDYNWS
    1000             0076   289          .WORD   4096                            ; LARGE NUMBER TO DEFEAT TEST FOR
                     0078   290
                     0078   291          PHD     W_SWAPSIZE                      ; SWAP SPACE SIZE TO SWAP PROCESS
00000052             0078                .=SAV...+PHD$W_SWAPSIZE
    FFFF             0052   292          .WORD   -1                              ; DISABLE FOR SYSTEM PROCESS
                     0054   293
                     0054   294          PHD     L_PTWSLELCK                     ; POINTER TO LOCKED PAGE TABLE ARRAY
00000064             0054                .=SAV...+PHD$L_PTWSLELCK
40000000             0064   295          .LONG   ^X40000000                      ; FORCE ACCESS VIOLATION FOR SYSTEM SPACE
                     0068   296
                     0068   297          PHD     L_PTWSLEVAL                     ; POINTER TO VALID PAGE TABLE ARRAY
40000000             0068   298          .LONG   ^X40000000                      ; FORCE ACCESS VIOLATION FOR SYSTEM SPACE
                     006C   299
0000017C             006C   300 .=SYSPHDEND                                     ; RESTORE LOCATION COUNTER
0000017C             017C   301 SYSPHDLEN=.-SAV...                              ; LENGTH OF SYSTEM HEADER
                     017C   302          .ENDC                                   ;
```

```
                017C    304          .SBTTL  SYSTEM PAGE TABLE
                017C    305 ;
                017C    306 ; BUILD THE SYSTEM PAGE TABLE
                017C    307 ;
                017C    308          .IF     DF,PRMSW                        ;
          00000000      309          .PSECT  $$$065,PAGE
                0000    310          .ENDC                                   ;
00000000        0000    311          PFN...=0
00000000        0000    312          SPTLEN=0                                ; INITIALIZE LENGTH COUNTER
                0000    313          .IF     DF,PRMSW                        ;
                0000    314 MMG$AL_SYSPAGTB::                               ;SYSTEM VIRTUAL ADDRESS OF SPT
                0000    315          .ENDC                                   ;
                0000    316 ;
                0000    317 ; SYSTEM SERVICE VECTORS - PSECT $$$000 HAS SGN$C_SYSVECPGS PAGES ALLOCATED ELSEWHER
                0000    318 ;
                0000    319          SYSPTE  SGN$C_SYSVECPGS,UR              ;SYSTEM SERVICE VECTORS ($$$000)
          00000000      .PSECT  $$$065
F8000000        0000    .LONG   PTE$M_VALID!PTE$C_UR
F8000000        0004    .LONG   PTE$M_VALID!PTE$C_UR
F8000000        0008    .LONG   PTE$M_VALID!PTE$C_UR
F8000000        000C    .LONG   PTE$M_VALID!PTE$C_UR
F8000000        0010    .LONG   PTE$M_VALID!PTE$C_UR
                0014    320          SYSPTE  1,UREW                          ;FCP PERFORMANCE DATA PAGE
          00000014      .PSECT  $$$065
E8000000        0014    .LONG   PTE$M_VALID!PTE$C_UREW
                0018    321
                0018    322          .IF     DF,PRMSW
00000006        0018    323 MMG$C_SPTSKEL==SPTLEN                           ; LENGTH OF SKELETON SPT IN  LONGWORDS
                0018    324          .ENDC
                0018    325
                0018    326 ;
                0018    327          .IF     NDF,PRMSW
                0018    328          .ENDC
                0018    329          .IF     NDF,PRMSW                       ;
                0018    330          .PSECT  $$$000ENDVEC,PAGE,EXE
                0018    331 MMG$A_ENDVEC::                                  ; MARKER FOR END OF VECTOR PAGES
                0018    332          .PSECT  $$$900,PAGE                     ; MARKER FOR BASE OF SYSPARAM
                0018    333 MMG$A_SYSPARAM::                                ;
                0018    334          .PSECT  $$$890_PATCH_NONPGD_DATA,LONG,EXE,WRT
                0018    335 PAT$A_NONPGD_DATA::                             ; NONPAGED DATA PATCH AREA
                0018    336          .LONG   MMG$A_SYSPARAM-<.+8>            ; SIZE OF AREA (INCLUDE EXCESS)
                0018    337          .ADDRESS        .+4                     ; POINTER TO FIRST AVAILABLE BYTE
                0018    338          .BLKB   NPGDRWPATCH                     ;
                0018    339
                0018    340          .PSECT  $$$999,PAGE,EXE                 ;END OF WRITABLE REGION
                0018    341 MMG$FRSTRONLY::                                             ;SYSTEM VIRTUAL ADDRESS
                0018    342                                                             ;OF FIRST READ ONLY PAGE
                0018    343
                0018    344          .PAGE
                0018    345          .SUBTITLE       READ-ONLY PATCH AREAS
                0018    346
                0018    347 ;+
                0018    348 ;  There is a single page of read-only patch space located at the boundary
                0018    349 ;  between the nonpaged and pageable exec routines. This page is used for
                0018    350 ;  patches to the nonpaged routines in SYS.EXE. There are two pages located
                 018    351 ;  in the middle of the pageable exec routines that are used for a pageable
                 018    352 ;  patch area.
```

```
0018   353 ;
0018   354 ;  In addition, there are three more pages located at the boundary
0018   355 ;  between the nonpaged and pageable exec routines. These pages are all
0018   356 ;  initially pageable. If either read-only patch area needs room to
0018   357 ;  expand, one of these pages can be used.
0018   358 ;
0018   359 ;     o If a pageable page is required, it should be taken from the
0018   360 ;       high address end (the third page). A patch descriptor must
0018   361 ;       be added for each page in this area used for pageable patch
0018   362 ;       area.
0018   363 ;
0018   364 ;     o If more nonpaged patch space is needed, that can be obtained
0018   365 ;       by extending the current nonpaged patch area. This expansion
0018   366 ;       consists of two steps. The first longword in the patch
0018   367 ;       descriptor (global label PAT$A_NONPGD_CODE) must be increased by
0018   368 ;       512 to reflect the size increase in the patch area. The
0018   369 ;       contents of the cell MMG$GL_PGDCOD, the boundary between the
0018   370 ;       nonpaged and pageable exec, must be increased by 512 to reflect
0018   371 ;       the fact that the nonpaged exec has grown by a page. To simplify
0018   372 ;       location of these two cells, they have additional labels that
0018   373 ;       clearly relate them to expanding nonpaged read-only patch area.
0018   374 ;       MMG$GL_PGDCOD is now loaded from BOO$GL_PGDCOD in SYSBOOT and
0018   375 ;       therefore BOO$GL_PGDCOD must be patched with the increased size.
0018   376 ;       MMG$GL_PGDCOD will get the increased size on reboot.
0018   377 ;
0018   378 ;               PAT$A_NONPGD_CODE       PAT$GL_EXP_NPG1
0018   379 ;               MMG$GL_PGDCOD           PAT$GL_EXP_NPG2
0018   380 ;-
0018   381
0018   382         .PSECT  X___PATCH_NONPGD_CODE,EXE        ; NONPAGED CODE PATCH AREA
0018   383 PAT$A_NONPGD_CODE::                              ; NONPAGED PURE
0018   384 PAT$GL_EXP_NPG1::                                ; (SYNONYM)
0018   385         .LONG   PAT$A_NONPGD_CODE_END-<.+8>      ; SIZE OF NONPAGED PATCH AREA
0018   386         .ADDRESS        .+4                      ; POINTER TO START
0018   387         .BLKB   NPGDPATCH                        ; ALLOCATE PAGE AREA
0018   388
0018   389 ;  The rest of this patch area starts out as pageable exec. It may be
0018   390 ;  made part of the nonpaged exec if more than one page of nonpaged
0018   391 ;  patch space is needed.
0018   392
0018   393         .PSECT  Y$$$PATCH_EXTEND_CODE,PAGE
0018   394 PAT$A_NONPGD_CODE_END::                          ; END OF NONPAGED PATCH AREA
0018   395         .BLKB   PATCH_AREA
0018   396
0018   397         .PSECT  YF$$$PATCH_PAGED_CODE,LONG       ; PATCH ARE FOR PAGED CODE
0018   398
0018   399 ;  The pageable read-only patch area is placed approximately in the middle
0018   400 ;  of the pageable exec to allow control to be passed into and out of the
0018   401 ;  patch area with BRW instructions rather than JMP instructions.
0018   402
0018   403 PAT$A_PAGED_CODE::                                ;
0018   404         .LONG   PGDPATCH                         ; SIZE OF AREA
0018   405         .ADDRESS        .+4                      ; START OF FREE AREA
0018   406         .BLKB   PGDPATCH                         ;
0018   407
0018   408 ;
0018   409 ;       MARK END OF PAGED CODE
```

```
0018   410 ;
0018   411         .PSECT  YZ99$PAGEDEND,PAGE
0018   412 MMG$AL_PGDCODEN::                       ;
0018   413
0018   414         .PAGE
0018   415         .SUBTITLE       OTHER GLOBAL LABELS
0018   416
0018   417 ;
0018   418 ; DEFINE BEGINNING AND END OF DRIVER REGION
0018   419 ;
0018   420
0018   421         .PSECT  $$$110_BEGDRIVE,LONG
0018   422 MMG$AL_BEGDRIVE::                       ;
0018   423         .PSECT  $$$120_ENDDRIVE,LONG
0018   424 MMG$AL_ENDDRIVE::                       ;
0018   425
0018   426 ;
0018   427 ; Define global labels for opcode/address table used by fixup code in
0018   428 ; INIT when more than 32 Mbytes of memory is present on the system.
0018   429 ; Each six byte entry in this table consists of an address whose contents
0018   430 ; are to be altered, a byte containing the current contants of that location
0018   431 ; to be used as a sanity check, and a byte containing the new opcode. The
0018   432 ; table is terminated with an address of zero.
0018   433 ;
0018   434
0018   435         .PSECT  Z$INIT$PFN_FIXUP_TABLE
0018   436 MMG$AL_FIXUPTBL::                       ; Listhead for opcode/address table
0018   437
0018   438         .ENDC                           ;
0018   439         .END
```

```
BOO$A_SYSPHD                    00000000 RG    02
MMG$AC_SYSPAGTB                 00000000 RG    03
MMG$C_SPTSKEL                 = 00000006   G
NPGDPATCH                     = 000001F8
NPGDRWPATCH                   = 000001F8
OP$_ACBD                      = 0000006F
OP$_ACBF                      = 0000004F
OP$_ACBG                      = 00004FFD
OP$_ACBH                      = 00006FFD
OP$_ADDD2                     = 00000060
OP$_ADDD3                     = 00000061
OP$_ADDF2                     = 00000040
OP$_ADDF3                     = 00000041
OP$_ADDG2                     = 000040FD
OP$_ADDG3                     = 000041FD
OP$_ADDH2                     = 000060FD
OP$_ADDH3                     = 000061FD
OP$_ADDP4                     = 00000020
OP$_ADDP6                     = 00000021
OP$_ASHP                      = 000000F8
OP$_CLRD                      = 0000007C
OP$_CLRF                      = 000000D4
OP$_CLRG                      = 0000007C
OP$_CLRH                      = 00007CFD
OP$_CMPD                      = 00000071
OP$_CMPF                      = 00000051
OP$_CMPG                      = 000051FD
OP$_CMPH                      = 000071FD
OP$_CMPP3                     = 00000035
OP$_CMPP4                     = 00000037
OP$_CRC                       = 0000000B
OP$_CVTBD                     = 0000006C
OP$_CVTBF                     = 0000004C
OP$_CVTBG                     = 00004CFD
OP$_CVTBH                     = 00006CFD
OP$_CVTDB                     = 00000068
OP$_CVTDF                     = 00000076
OP$_CVTDH                     = 000032FD
OP$_CVTDL                     = 0000006A
OP$_CVTDW                     = 00000069
OP$_CVTFB                     = 00000048
OP$_CVTFD                     = 00000056
OP$_CVTFG                     = 000099FD
OP$_CVTFH                     = 000098FD
OP$_CVTFL                     = 0000004A
OP$_CVTFW                     = 00000049
OP$_CVTGB                     = 000048FD
OP$_CVTGF                     = 000033FD
OP$_CVTGH                     = 000056FD
OP$_CVTGL                     = 00004AFD
OP$_CVTGW                     = 000049FD
OP$_CVTHB                     = 000068FD
OP$_CVTHD                     = 0000F7FD
OP$_CVTHF                     = 0000F6FD
OP$_CVTHG                     = 000076FD
OP$_CVTHL                     = 00006AFD
OP$_CVTHW                     = 000069FD
OP$_CVTLD                     = 0000006E
OP$_CVTLF                     = 0000004E
OP$_CVTLG                     = 00004EFD
OP$_CVTLH                     = 00006EFD
OP$_CVTLP                     = 000000F9
OP$_CVTPL                     = 00000036
OP$_CVTPS                     = 00000008
OP$_CVTPT                     = 00000024
OP$_CVTRDL                    = 0000006B
OP$_CVTRFL                    = 0000004B
OP$_CVTRGL                    = 00004BFD
OP$_CVTRHL                    = 00006BFD
OP$_CVTSP                     = 00000009
OP$_CVTTP                     = 00000026
OP$_CVTWD                     = 0000006D
OP$_CVTWF                     = 0000004D
OP$_CVTWG                     = 00004DFD
OP$_CVTWH                     = 00006DFD
OP$_DIVD2                     = 00000066
OP$_DIVD3                     = 00000067
OP$_DIVF2                     = 00000046
OP$_DIVF3                     = 00000047
OP$_DIVG2                     = 000046FD
OP$_DIVG3                     = 000047FD
OP$_DIVH2                     = 000066FD
OP$_DIVH3                     = 000067FD
OP$_DIVP                      = 00000027
OP$_EDITPC                    = 00000038
OP$_EMODD                     = 00000074
OP$_EMODF                     = 00000054
OP$_EMODG                     = 000054FD
OP$_EMODH                     = 000074FD
OP$_MATCHC                    = 00000039
OP$_MNEGD                     = 00000072
OP$_MNEGF                     = 00000052
OP$_MNEGG                     = 000052FD
OP$_MNEGH                     = 000072FD
OP$_MOVD                      = 00000070
OP$_MOVF                      = 00000050
OP$_MOVG                      = 000050FD
OP$_MOVH                      = 000070FD
OP$_MOVP                      = 00000034
OP$_MOVTC                     = 0000002E
OP$_MOVTUC                    = 0000002F
OP$_MULD2                     = 00000064
OP$_MULD3                     = 00000065
OP$_MULF2                     = 00000044
OP$_MULF3                     = 00000045
OP$_MULG2                     = 000044FD
OP$_MULG3                     = 000045FD
OP$_MULH2                     = 000064FD
OP$_MULH3                     = 000065FD
OP$_MULP                      = 00000025
OP$_POLYD                     = 00000075
OP$_POLYF                     = 00000055
OP$_POLYG                     = 000055FD
OP$_POLYH                     = 000075FD
```

```
OP$_SCANC                       =  0000002A
OP$_SKPC                        =  0000003B
OP$_SPANC                       =  0000002B
OP$_SUBD2                       =  00000062
OP$_SUBD3                       =  00000063
OP$_SUBF2                       =  00000042
OP$_SUBF3                       =  00000043
OP$_SUBG2                       =  000042FD
OP$_SUBG3                       =  000043FD
OP$_SUBH2                       =  000062FD
OP$_SUBH3                       =  000063FD
OP$_SUBP4                       =  00000022
OP$_SUBP6                       =  00000023
OP$_TSTD                        =  00000073
OP$_TSTF                        =  00000053
OP$_TSTG                        =  000053FD
OP$_TSTH                        =  000073FD
PATCH_AREA                      =  00000C00
PFN...                          =  00000006
PGDPATCH                        =  000003F8
PHD$C_LENGTH                    =  0000017C
PHD$L_FREP1VA                   =  00000030
PHD$L_PTWSLELCK                 =  00000064
PHD$L_PTWSLEVAL                 =  00000068
PHD$W_EXTDYNWS                  =  00000076
PHD$W_SWAPSIZE                  =  00000052
PHD$W_WSDYN                     =  0000000E
PHD$W_WSLIST                    =  00000008
PHD$W_WSLOCK                    =  0000000C
PHD$W_WSNEXT                    =  00000010
PRMSW                           =  00000001
PTE$C_UR                        =  78000000
PTE$C_UREW                      =  68000000
PTE$M_VALID                     =  80000000
SAV...                          =  00000000 R      02
SGN$C_SYSVECPGS                 =  00000005
SPTLEN                          =  00000006
SYSPHDEND                       =  0000017C R      02
SYSPHDLEN                       =  0000017C
WSL...                          =  0000005F
```

Psect synopsis

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
ABS	00000000 (0.)	01 (1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
$$$063	0000017C (380.)	02 (2.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC PAGE
$$$065	00000018 (24.)	03 (3.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC PAGE

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	35	00:00:00.09	00:00:02.06
Command processing	127	00:00:00.73	00:00:08.76
Pass 1	429	00:00:12.85	00:00:46.84
Symbol table sort	0	00:00:01.03	00:00:04.34
Pass 2	93	00:00:04.09	00:00:13.20
Symbol table output	20	00:00:00.15	00:00:00.53
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	708	00:00:18.98	00:01:15.77

The working set limit was 1650 pages.
59878 bytes (117 pages) of virtual memory were used to buffer the intermediate code.
There were 50 pages of symbol table space allocated to hold 789 non-local and 0 local symbols.
3192 source lines were read in Pass 1, producing 15 object records in Pass 2.
143 pages of virtual memory were used to define 142 macros.

Macro library statistics

Macro library name	Macros defined
_255DUA28:[SYS.OBJ]LIB.MLB;1	5
_255DUA28:[SYSLIB]STARLET.MLB;2	5
TOTALS (all libraries)	10

858 GETS were required to define 10 macros.

There were no errors, warnings or information messages.

```
MACRO/LIS=LIS$:SPTSKEL/OBJ=OBJ$:SPTSKEL MSRC$:PRMSW/UPDATE=(ENH$:PRMSW)+MASD$:[EMULAT.SRC]MISSING/UPDATE=(MASD$:[EMULAT.ENH]MISSING)
```

SHELL
LIS

RSE
LIS

SCBVECTOR
LIS

SDAT
LIS

SHMGSDRTN
LIS

SCSVEC
LIS

SCHED
LIS

SECAUDIT
LIS

SPTSKEL
LIS

RUFSYSVEC
LIS

0381 AH-BT13A-SE
VAX/VMS V4.0

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SSDEF
LIS

SYSACPFDT
LIS

SYSADJSTK
LIS

SYSASCEFC
LIS

SYSBRKTHR
LIS

SYSASSIGN
LIS

SWAPPER
LIS

SYSASTCON
LIS

SVAPTE
LIS

SYSADJWSL
LIS