



```

PPPPPPPP      DDDDDDDD      AAAAAA      TTTTTTTTTT
PPPPPPPP      DDDDDDDD      AAAAAA      TTTTTTTTTT
PP           PP DD          DD AA          AA          TT
PP           PP DD          DD AA          AA          TT
PP           PP DD          DD AA          AA          TT
PP           PP DD          DD AA          AA          TT
PPPPPPPP      DD          DD AA          AA          TT
PPPPPPPP      DD          DD AA          AA          TT
PP           DD          DD AAAAAAAAAA      TT
PP           DD          DD AAAAAAAAAA      TT
PP           DD          DD AA          AA          TT
PP           DD          DD AA          AA          TT
PP           DDDDDDDD      AA          AA          TT
PP           DDDDDDDD      AA          AA          TT

```

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....
....
....
....

```

```

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

```

(1)	82	DECLARATIONS
(1)	276	STACKS FOR NULL AND SWAPPER PROCESS
(1)	293	NULL PROCESS HEADER AND PCB
(1)	306	SWAPPER PROCESS HEADER AND PCB
(1)	322	SYSTEM PCB
(1)	331	PCB ADDRESS VECTOR

```

0000 1 .TITLE PDAT PROCESS DATA BASE
0000 2 .IDENT 'V04-000'
0000 3
0000 4 *****
0000 5 *
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0000 23 *
0000 24 *
0000 25 *****
0000 26
0000 27 **
0000 28 FACILITY: EXECUTIVE, PROCESS DATA BASE
0000 29
0000 30 ABSTRACT: PDAT ALLOCATES AND INITIALIZES THE STORAGE FOR THE
0000 31 PROCESS DATA BASE, WHICH CONTAINS THE PCB, PHD AND STACK FOR
0000 32 THE NULL PROCESS AND SWAPPER PROCESS.
0000 33
0000 34 ENVIRONMENT:
0000 35
0000 36
0000 37 AUTHOR: RICHARD I. HUSTVEDT , CREATION DATE: 23-NOV-76
0000 38
0000 39 MODIFIED BY:
0000 40
0000 41 V03-007 LJK0288 Lawrence J. Kenah 9-Aug-1984
0000 42 The AUTHPRI field is located in both the PCB and the PHD.
0000 43
0000 44 V03-006 TMK0001 Todd M. Katz 24-Aug-1983
0000 45 Create the SWAPPER with a UIC of [1,4].
0000 46
0000 47 V03-005 KFHO001 Ken Henderson 20 May 1983
0000 48 Set PCB$V_PHDRES for NULL and SWAPPER
0000 49
0000 50 V03-004 CWH1008 CW Hobbs 14-May-1983
0000 51 Add cell SCH$GW_LOCALNODE to hold the node bits for the
0000 52 local cluster node.
0000 53
0000 54 V03-003 ACG0319 Andrew C. Goldstein, 22-Mar-1983 21:26
0000 55 Add resource attribute to UIC in process rights list
0000 56
0000 57 V03-002 ACG0318 Andrew C. Goldstein, 8-Mar-1983 19:50

```

0000	58	:	
0000	59	:	Add initial rights lists to null and swapper PCB's
0000	60	:	
0000	61	:	V03-001 CWH1001 CW Hobbs 15-Feb-1983
0000	62	:	Add cells for last PID created and width of PIX field of PID
0000	63	:	(SCH\$GL_PIXLAST and SCH\$GL_PIXWIDTH).
0000	64	:	
0000	65	:	V02-005 LJK0097 Lawrence J. Kenah 3-Dec-1981
0000	66	:	Initialize all priority fields in PCB and PHD for
0000	67	:	both swapper and null process.
0000	68	:	
0000	69	:	V02-004 LJK0067 Lawrence J. Kenah 15-Sep-1981
0000	70	:	Move kernel stacks for SWAPPER and NULL so that they are
0000	71	:	adjacent to FCP data area. This prevents the exception and
0000	72	:	bugcheck code from overwriting valuable data when the system
0000	73	:	is manually crashed while the null process is executing.
0000	74	:	
0000	75	:	V02-003 SRB0029 Steve Beckhardt 17-Jul-1981
0000	76	:	Added code to initialize lock queue header to GENPCB macro
0000	77	:	
0000	78	:	V02-002 KTA1024 Kerbey T. Altmann 30-Jun-1981
0000	79	:	Cause SWAPPER to start up with its PCB addr in R4.
0000	80	:	--

```

0000 82      .SBTTL  DECLARATIONS
0000 83
0000 84  :
0000 85  : INCLUDE FILES:
0000 86  :
0000 87      $ARBDEF      ;ACCESS RIGHTS BLOCK DEFINITIONS
0000 88      $DYNDEF      ;DYNAMIC DATA STRUCTURE TYPE DEFINITIONS
0000 89      $PCBDEF      ;PROCESS CONTROL BLOCK DEFINITIONS
0000 90      $PHDDEF      ;PROCESS HEADER DEFINITIONS
0000 91      $$GNDEF GLOBAL ;DEFINE SYSGEN VALUES
0000 92      $STATEDEF     ;DEFINE STATE NUMBERS
0000 93
0000 94 ;***** Temporary ARB definitions until SDL is fixed to expand
0000 95 ;***** substructure names correctly.
0000 96 :
00000020 0000 97 ARB$R_RIGHTSLIST=32
00000030 0000 98 ARB$R_RIGHTSDESC=48
0000 99 ;***** END OF TEMPORARY DEFINITIONS
0000 100
0000 101 :
0000 102 : EXTERNAL SYMBOLS:
0000 103 :
0000 104
0000003F 0000 105 SCH$C_MAXPIX==SGN$C_NPROCS-1 ; MAXIMUM PIX
0000 106
0000 107 :
0000 108 : MACROS:
0000 109 :
0000 110      .LIST  MEB
0000 111      .MACRO  PHD      SYM
0000 112      .=PHD...+PHD$'SYM
0000 113      .ENDM   PHD
0000 114
0000 115      .MACRO  PCB      SYM
0000 116      .=PCB...+PCB$'SYM
0000 117      .ENDM   PCB
0000 118
0000 119
0000 120 :
0000 121 : MACRO TO GENERATE PCB
0000 122 :
0000 123      .MACRO  GENPCB LBL,UIC=0,PHD,PRIORITY,PID,PNAME
0000 124
0000 125      .ALIGN  QUAD
0000 126 PCB...=.
0000 127 LBL==.
0000 128      .BLKB  PCB$C_LENGTH
0000 129 SAV...=. ; SAVE FOR CONTINUATION
0000 130
0000 131      PCB    L_SQFL
0000 132      .LONG  :
0000 133      .LONG  :-4
0000 134
0000 135      PCB    W_SIZE
0000 136      .WORD  PCB$C_LENGTH
0000 137
0000 138      PCB    B_TYPE

```



```

0000 196 PCB Q_PRIV+ARB$R_RIGHTSDESC ; LOCAL RIGHTS DESCRIPTOR
0000 197 LR = .
0000 198 .LONG ARB$$_LOCALRIGHTS,LU
0000 199
0000 200 PCB Q_PRIV+ARB$R_RIGHTSLIST ; PROCESS RIGHTS LIST
0000 201 .LONG LR ; LOCAL RIGHTS LIST
0000 202 .LONG EXE$GQ_RIGHTSLIST ; SYSTEM RIGHTS LIST
0000 203
0000 204 PCB T_LNAME ; PROCESS NAME
0000 205 .NCHR NCHAR,<PNAME> ; COUNT FOR NAME
0000 206 .BYTE NCHAR ;
0000 207 .ASCII \PNAME\ ;
0000 208
0000 209 PCB L_LOCKQFL ; LOCK QUEUE HEADER
0000 210 .LONG ;
0000 211 .LONG :-4 ;
0000 212
0000 213 .=SAV... ; POSITION TO END OF PCB
0000 214
0000 215 .ENDM GENPCB ;
0000 216
0000 217 :
0000 218 : MACRO TO GENERATE PROCESS HEADER
0000 219 :
0000 220 .MACRO GENPHD LBL,KSP=0,PC=0,POBR=<^X80000000>,POLR=0,R4=0,PRIORITY=0
0000 221
0000 222 .ALIGN QUAD
0000 223 PHD...=.
0000 224 LBL=. ; DEFINE LABEL
0000 225 .BLKB PHD$C_LENGTH ; GENERATE SPACE
0000 226 SAV...=. ; SAVE FOR CONTINUATION
0000 227
0000 228 PHD L_R4 ; INITIAL R4 CONTENTS
0000 229 .LONG R4
0000 230
0000 231 PHD L_PC
0000 232 .LONG PC ; PROGRAM COUNTER
0000 233
0000 234 PHD Q_PRIVMSK
0000 235 .LONG -T,-1 ; ALLOW EVERYTHING
0000 236
0000 237 PHD L_POLRASTL
0000 238 .LONG POLR ; P0 LENGTH REGISTER
0000 239
0000 240 PHD L_POBR
0000 241 .LONG POBR ; P0 BASE REGISTER
0000 242
0000 243 PHD L_P1BR
0000 244 .LONG ^X7F802000 ; P1 BASE REGISTER
0000 245
0000 246 PHD L_P1LR
0000 247 .LONG ^X200000 ; P1 LENGTH REGISTER
0000 248
0000 249 PHD L_KSP
0000 250 .LONG KSP ; KERNEL STACK POINTER
0000 251 PHD B_ASTLVL
0000 252 .BYTE 4 ; NO PENDING AST'S

```



```
0000 253
0000 254 PHD L_FREP1VA ; FIRST AVAIL P1 VA
0000 255 .LONG ^X7FFFFFFE00 ; ALL FREE
0000 256
0000 257 PHD W_PHVINDE ; BALANCE SLOT INDEX
0000 258 .WORD -T ; MAKE PAGE FAULTS ILLEGAL
0000 259
0000 260 PHD B_AUTHPRI
0000 261 .BYTE ST-PRIORITY ; BASE PRIORITY
0000 262
0000 263 .=SAV... ; POSITION TO END OF PHD
0000 264
0000 265 .ENDM GENPHD ;
0000 266
0000 267 ; EQUATED SYMBOLS
0000 268
00000010 0000 269 SWAP_EXT_PRIO = 16
00000010 0000 270 SYS_EXT_PRIO = 16
00000000 0000 271 NULC_EXT_PRIO = 0
0000 272
00010004 0000 273 SWAP_UIC = ^X00010004
0000 274
```

```
0000 276 .SBTTL STACKS FOR NULL AND SWAPPER PROCESS
0000 277 :
0000 278 : PROCESS STACKS (KERNEL MODE)
0000 279 :
00000000 280 .PSECT $$$000_STACKS,QUAD
00000080 0000 281
00000080 0080 282 .BLKL 32 ; SHORT STACK FOR NULL PROCESS
00000080 0080 283 NULKSP: ;
000000A0 0080 284
00000300 0080 285 SWP$K_KSTKSZ==160 ; SIZE OF SWAPPER STACK
00000300 0300 286 .BLKL SWP$K_KSTKSZ ; LONGER STACK FOR SWAPPER
0300 287 SWPKSP: ;
0300 288 SWP$A_KSTK:: ; EXTERNAL NAME FOR SWAPPER STACK
0300 289
00000000 291 .PSECT $$$230,QUAD
```

```

0000 293 .SBTTL NULL PROCESS HEADER AND PCB
0000 294 :
0000 295 :
0000 296 :
0000 297 :
000017C 0000 GENPHD NULPHD,KSP=NULKSP,PC=EXESNULLPROC,PRIORITY=NULL_EXT_PRIO
0000098 017C .BLKB PHD$C_LENGTH ; GENERATE SPACE
0000000 0098 .=PHD...+PHD$C_R4
00000C0 009C .LONG 0
0000000 00C0 .=PHD...+PHD$L_PC
0000000 00C4 .LONG EXESNULLPROC ; PROGRAM COUNTER
FFFFFFFF FFFFFFFF .PHD...+PHD$Q_PRIVMSK
000000C 0008 .LONG -1,-1 ; ALLOW EVERYTHING
0000000 00CC .=PHD...+PHD$L_POLRASTL
000000C 00D0 .LONG 0
0000000 00C8 .=PHD...+PHD$L_POBR
8000000 00C8 .LONG ^X80000000
000000D 00CC .=PHD...+PHD$L_P1BR
7F802000 00D0 .LONG ^X7F802000
00200000 00D4 .LONG ^X200000 ; P1 LENGTH REGISTER
0000078 00D8 .=PHD...+PHD$L_KSP
0000080 0078 .LONG NULKSP ; KERNEL STACK POINTER
00000CF 007C .=PHD...+PHD$B_ASTLVL
04 00CF .BYTE 4 ; NO PENDING AST'S
0000030 00D0 .=PHD...+PHD$L_FREPIVA
7FFFFFF0 0030 .LONG ^X7FFFFFF0 ; ALL FREE
0000042 0034 .=PHD...+PHD$W_PHVINDEX
FFF 0042 .WORD -1 ; MAKE PAGE FAULTS ILLEGAL
000010C 0044 .=PHD...+PHD$B_AUTHPRI
1F 010C .BYTE 31-NULC_EXT_PRIO ; BASE NULL_EXT_PRIO
000017C 010D .=SAV... ; POSITION TO END OF PHD
017C 298 :
017C 299 :
017C 300 :
017C 301 :
017C 302 :
017C 303 :
00002A0 0180 .ALIGN QUAD
0000180 02A0 .BLKB PCB$C_LENGTH
0000180 0180 .=PCB...+PCB$C_SFLL
0000180 0184 .LONG .
0000180 0184 .LONG -4
0120 0188 .WORD PCB$C_LENGTH
0C 018A .BYTE DYN$C_PCB
000018D 018B .=PCB...+PCB$B_ASTEN
0F 018D .BYTE ^X0F
0000190 018E .=PCB...+PCB$L_ASTQFL
0000190 0190 .LONG .
0000190 0194 .LONG -4
8000078 0198 .LONG NULPHD-^X80000000+PHD$L_PCB ; PHYSICAL PCB ADDRESS
000023C 019C .=PCB...+PCB$L_UIC
0000001 0000000 023C .LONG 0,1 ; 0 FOR PROCESS, RESOURCE FLAG
00001AC 0244 .=PCB...+PCB$W_STATE
000E 01AC .WORD SCH$C_CUR ;
00001A4 01AE .=PCB...+PCB$C_STS
0004011 01A4 .LONG <1@PCB$V_RES>+<1@PCB$V_PSWAPM>+<1@PCB$V_PHDRES>
00001AF 01AB .=PCB...+PCB$B_PRI0
1F 01AF .BYTE 31-NULC_EXT_PRIO ; BASE NULL_EXT_PRIO

```

```

000001AB 01B0      .=PCB...+PCBSB_AUTHPRI
          1F 01AB    .BYTE   31-NULC_EXT_PRIO          ; INITIAL BASE NULL_EXT_PRIO
0000018B 01AC      .=PCB...+PCBSB_PRI
          1F 018B    .BYTE   31-NULC_EXT_PRIO          ; CURRENT NULL_EXT_PRIO
000001A9 018C      .=PCB...+PCBSB_PRI$AV
          1F 01A9    .BYTE   31-NULC_EXT_PRIO          ; SAVED BASE NULL_EXT_PRIO
000001A8 01AA      .=PCB...+PCBSB_PRI$AV
          1F 01A8    .BYTE   31-NULC_EXT_PRIO          ; SAVED CURRENT NULL_EXT_PRI
000001C0 01A9      .=PCB...+PCBSW_DIOLM
          0006 01C0   .WORD   6                          ; ALLOW REASONABLE LIMIT
000001BE 01C2      .=PCB...+PCBSW_DIOCNT
          0006 01BE   .WORD   6
0000C1E0 01C0      .=PCB...+PCBSL_PID
00010000' 01E0      .LONG   NULPIX<1@16>              ; PROCESS ID
000001EC 01E4      .=PCB...+PCBSL_PHD
00000000' 01EC      .LONG   NULPHD                    ; PROCESS HEADER
00000204 01F0      .=PCB...+PCBSQ_PRIV
FFFFFFFF  FFFFFFFF 0204      .LONG   -1,-1                     ; ALL PRIVILEGES
00000204' 020C      .LONG   ARB
00000234 0210      .=PCB...+PCBSQ_PRIV+ARB$R_RIGHTSDESC
0000023C' 00000040 0234      .LONG   ARB$S_LOCALRIGHTS,LU
00000224 023C      .=PCB...+PCBSQ_PRIV+ARB$R_RIGHTSLIST
00000234' 0224      .LONG   LR                          ; LOCAL RIGHTS LIST
00000000' 0228      .LONG   EXE$GQ_RIGHTSLIST          ; SYSTEM RIGHTS LIST
000001F0 022C      .=PCB...+PCBST_LNAME
          04 01F0    .BYTE   NCHAR
4C 4C 55 4E 01F1  .ASCII  \NULL\
00000284 01F5      .=PCB...+PCBSL_LOCKQFL
00000284' 0284      .LONG   :
00000284' 0288      .LONG   :-4
000002A0 028C      .=SAV...
          02A0
304

```

```

02A0 306 .SBTTL SWAPPER PROCESS HEADER AND PCB
02A0 307 :
02A0 308 :
02A0 309 :
02A0 310 :
02A0 311 :
02A0 312 :
0000041C 02A0 .BLKB PHD$C_LENGTH ; GENERATE SPACE
00000338 041C .=PHD...+PHD$C_R4
00000420 0338 .LONG SCH$GL_SWPPCB
00000360 033C .=PHD...+PHD$C_PC
00000000 0360 .LONG EXE$SWAPINIT ; PROGRAM COUNTER
000002A0 0364 .=PHD...+PHD$Q_PRIVMSK
FFFFFFFF FFFFFFFF 02A0 .LONG -1,-1 ; ALLOW EVERYTHING
0000036C 02A8 .=PHD...+PHD$L_POLRASTL
00000000 036C .LONG 0
00000368 0370 .=PHD...+PHD$L_POBR
00000000 0368 .LONG 0
00000370 036C .=PHD...+PHD$L_P1BR
7F802000 0370 .LONG ^X7F802000
00200000 0374 .LONG ^X200000 ; P1 LENGTH REGISTER
00000318 0378 .=PHD...+PHD$L_KSP
00000300 0318 .LONG SWPKSP ; KERNEL STACK POINTER
0000036F 031C .=PHD...+PHD$B_ASTLVL
04 036F .BYTE 4 ; NO PENDING AST'S
000002D0 0370 .=PHD...+PHD$L_FREP1VA
7FFFFFFE00 02D0 .LONG ^X7FFFFFFE00 ; ALL FREE
000002E2 02D4 .=PHD...+PHD$W_PHVINDEX
FFFF 02E2 .WORD -1 ; MAKE PAGE FAULTS ILLEGAL
000003AC 02E4 .=PHD...+PHD$B_AUTHPRI
OF 03AC .BYTE 31-SWAP_EXT_Prio ; BASE SWAP EXT PRIO
0000041C 03AD .=SAV... ; POSITION TO END OF PHD
041C 313 :
041C 314 :
041C 315 :
041C 316 :
041C 317 :
041C 318 :
00000540 0420 .ALIGN QUAD
00000420 0540 .BLKB PCB$C_LENGTH
00000420 0420 .=PCB...+PCB$C_SQFL
00000420 0424 .LONG .-4
0120 0428 .WORD PCB$C_LENGTH
0C 042A .BYTE DYN$C_PCB
0000042D 042B .=PCB...+PCB$B_ASTEN
OF 042D .BYTE ^XOF
00000430 042E .=PCB...+PCB$L_ASTQFL
00000430 0430 .LONG .
00000430 0434 .LONG .-4
80000318 0438 .LONG SWPPHD-^X80000000+PHD$L_PCB ; PHYSICAL PCB ADDRESS
000004DC 043C .=PCB...+PCB$L_UIC
00000001 00010004 04DC .LONG SWAP_UIC,1 ; SWAP_UIC FOR PROCESS, RESO
0000044C 04E4 .=PCB...+PCB$W_STATE
000E 044C .WORD SCH$C_CUR ;
00000444 044E .=PCB...+PCB$C_STS
00040011 0444 .LONG <1@PCB$V_RES>+<1@PCB$V_PSWAPM>+<1@PCB$V_PHDRES>

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```

0000044F 0448      .PCB...+PCBSB PRIB
      OF 044F      .BYTE 31-SWAP_EXT_PRIO      ; BASE_SWAP_EXT_PRIO
0000044B 0450      .PCB...+PCBSB AUTHPRI
      OF 044B      .BYTE 31-SWAP_EXT_PRIO      ; INITIAL_BASE_SWAP_EXT_PRIO
0000042B 044C      .PCB...+PCBSB PRI
      OF 042B      .BYTE 31-SWAP_EXT_PRIO      ; CURRENT_SWAP_EXT_PRIO
00000449 042C      .PCB...+PCBSB PRIBSAV
      OF 0449      .BYTE 31-SWAP_EXT_PRIO      ; SAVED_BASE_SWAP_EXT_PRIO
00000448 044A      .PCB...+PCBSB PRISAV
      OF 0448      .BYTE 31-SWAP_EXT_PRIO      ; SAVED_CURRENT_SWAP_EXT_PRI
00000460 0449      .PCB...+PCBSW_DIOLM
      0006 0460      .WORD 6      ; ALLOW_REASONABLE_LIMIT
0000045E 0462      .PCB...+PCBSW_DIOCNT
      0006 045E      .WORD 6
00000480 0460      .PCB...+PCBSL_PID
00010001 0480      .LONG SCH$C_SWPPIX+<1@16>      ; PROCESS_ID
0000048C 0484      .PCB...+PCBSL_PHD
000002A0 048C      .LONG SWPPHD      ; PROCESS_HEADER
000004A4 0490      .PCB...+PCBSQ_PRIV
FFFFFFFF FFFFFFFF 04A4      .LONG -1,-1      ; ALL_PRIVILEGES
000004A4 04AC      .LONG ARB
000004D4 0480      .PCB...+PCBSQ_PRIV+ARBSR_RIGHTSDESC
000004DC 00000040 04D4      .LONG ARBS LOCALRIGHTS,LU
000004C4 04DC      .PCB...+PCBSQ_PRIV+ARBSR_RIGHTSLIST
000004D4 04C4      .LONG LR      ; LOCAL_RIGHTS_LIST
00000000 04C8      .LONG EXESGQ_RIGHTSLIST      ; SYSTEM_RIGHTS_LIST
00000490 04CC      .PCB...+PCBST_LNAME
      07 0490      .BYTE NCHAR
52 45 50 50 41 57 53 0491      .ASCII \SWAPPER\
00000524 0498      .PCB...+PCBSL_LOCKQFL
00000524 0524      .LONG .
00000524 0528      .LONG .-4
00000540 052C      .PCB...+PCBSL_LOCKQFL
      319 .SAV...      ; POSITION_TO_END_OF_PCB
00000480 0540      320 SCH$GL_SWPPID==SCH$GL_SWPPCB+PCBSL_PID      ; ADDRESS_OF_SWAPPER_PID

```

```

00000001 00000660 0540
00000540 0660
00000540 0540
00000540 0544
          0120 0548
          0C 054A
0000054D 054B
          0F 054D
00000550 054E
00000550 0550
00000550 0554
80000078 0558
000005FC 055C
00000000 05FC
0000056C 0604
          000E 056C
00000564 056E
00040011 0564
0000056F 0568
          0F 056F
0000056B 0570
          0F 056B
0000054B 056C
          0F 054B
00000569 054C
          0F 0569
00000568 056A
          0F 0568
00000580 0569
          0006 0580
0000057E 0582
          0006 057E
000005A0 0580
00010000 05A0
000005AC 05A4
00000000 05AC
000005C4 0580
FFFFFFFF FFFFFFFF 05C4
000005C4 05CC
000005F4 05D0
000005FC 00000040 05F4
000005E4 05FC
000005F4 05E4
00000000 05E8
00000580 05EC
          00 0580
00000644 0581
00000644 0644
00000644 0648
00000660 064C
          . = SAV...

.SBTTL SYSTEM PCB
GENERATE DUMMY PCB FOR SYSTEM PAGING

GENPCB MMG$AL SYSPCB,PHD=0,-
        PID=0,PRIORITY=SYS_EXT_PRIO
        .BLKB PCB$C_LENGTH
        . = PCB...+PCB$C_SQFL
        .LONG .
        .LONG -4
        .WORD PCB$C_LENGTH
        .BYTE DYN$C_PCB
        . = PCB...+PCB$B_ASTEN
        .BYTE ^XOF
        . = PCB...+PCB$L_ASTQFL
        .LONG .
        .LONG -4
        .LONG 0-^X80000000+PHD$L_PCB ; PHYSICAL PCB ADDRESS
        . = PCB...+PCB$L_UIC
        .LONG 0,1 ; 0 FOR PROCESS, RESOURCE FLAG
        . = PCB...+PCB$W_STATE
        .WORD SCH$C_CUR ;
        . = PCB...+PCB$C_STS
        .LONG <1@PCB$V_RES>+<1@PCB$V_PSWAPM>+<1@PCB$V_PHDRES>
        . = PCB...+PCB$B_PRI
        .BYTE 31-SYS_EXT_PRIO ; BASE SYS_EXT_PRIO
        . = PCB...+PCB$B_AUTRPRI
        .BYTE 31-SYS_EXT_PRIO ; INITIAL BASE SYS_EXT_PRIO
        . = PCB...+PCB$B_PRI
        .BYTE 31-SYS_EXT_PRIO ; CURRENT SYS_EXT_PRIO
        . = PCB...+PCB$B_PRI$SAV
        .BYTE 31-SYS_EXT_PRIO ; SAVED BASE SYS_EXT_PRIO
        . = PCB...+PCB$B_PRI$SAV
        .BYTE 31-SYS_EXT_PRIO ; SAVED CURRENT SYS_EXT_PRIO
        . = PCB...+PCB$W_DIOCM
        .WORD 6 ; ALLOW REASONABLE LIMIT
        . = PCB...+PCB$W_DIOCNT
        .WORD 6
        . = PCB...+PCB$L_PID
        .LONG 0+<1@16> ; PROCESS ID
        . = PCB...+PCB$L_PHD
        .LONG 0 ; PROCESS HEADER
        . = PCB...+PCB$Q_PRIV
        .LONG -1,-1 ; ALL PRIVILEGES
        . = PCB...+PCB$Q_PRIV+ARB$R_RIGHTSDESC
        .LONG ARB$S_LOCALRIGHTS,LU
        . = PCB...+PCB$Q_PRIV+ARB$R_RIGHTSLIST
        .LONG LR ; LOCAL RIGHTS LIST
        .LONG EXE$GQ_RIGHTSLIST ; SYSTEM RIGHTS LIST
        . = PCB...+PCB$T_LNAME
        .BYTE NCHAR ;
        . = PCB...+PCB$L_LOCKQFL
        .LONG .-4 ; POSITION TO END OF PCB

```

PDAT  
V04-000

PROCESS DATA BASE  
SYSTEM PCB

0660 329

B 3

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00  
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1

Page 13  
(1)

PH  
V0



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0660 331 .SBTTL PCB ADDRESS VECTOR
0660 332 :
0660 333 :
0660 334 : NOTE: THE POINTER TO THE NULL PROCESS PCB MUST BE PROCESS
0660 335 : INDEX=0. ALL INACTIVE PCB POINTER ENTRIES ARE FILLED
0660 336 : WITH THE ADDRESS OF THE NULL PROCESS PCB TO INSURE THAT
0660 337 : THEY POINT TO A VALID PCB.
0660 338 : NOTE: MANY PLACES IN VMS ASSUME THAT THE SWAPPER IS IN THE
0660 339 : HIGHEST NUMBERED 'SPECIAL' SLOT. MANY SCANS OF THE
0660 340 : PCBVEC GO FROM SCH$C_SWPPIX+1 TO THE END.
00000000 0660 341 NULPIX=0 ; PIX FOR NULL PROCESS
00000001 0660 342 SCH$C_SWPPIX==1 ; PIX FOR SWAPPER PROCESS
0660 343 :
0660 344 :
0660 345 : VECTOR OF PROCESS CONTROL BLOCK ADDRESSES
0660 346 :
0660 347 : .ALIGN LONG ; LONG WORD ALIGNMENT
00000000 0660 348 SCH$GL_PCBVEC:: ; POINTER TO PCB VECTOR
0660 349 .LONG 0 ;
0664 350 :
0664 351 :
0664 352 : VECTOR OF SEQUENCE NUMBERS FOR PID GENERATION
0664 353 :
00000000 0664 354 SCH$GL_SEQVEC:: ; POINTER TO SEQUENCE NUMBER VECTOR
0664 355 .LONG 0 ;
0668 356 :
0668 357 :
0668 358 : DATA ITEMS FOR PCBVEC REFERENCES
0668 359 :
00000000 0668 360 SCH$GL_MAXPIX:: ; MAXIMUM PROCESS INDEX
0668 361 .LONG 0 ;
00000001 066C 362 SCH$GL_PIXLAST:: ; LAST PROCESS INDEX CREATED, USED
066C 363 .LONG SCH$C_SWPPIX ; IN ROUND ROBIN PID ALLOCATION.
0670 364 ; INIT TO SCH$C_SWPPIX SO FIRST SEA
0670 365 ; WILL GET SLOT AFTER SWAPPER
0670 366 :+
0670 367 : *** The next cell contains the width of the index field in the extended (user-
0670 368 : *** visible) PID. While it is possible to find the pcb address with:
0670 369 : ***
0670 370 : *** EXTZV #0, G^SCH$GL_PIXWIDTH, EPID, R0 ; Get index in R0
0670 371 : *** MOVL @G^SCH$GL_PCBVEC[R0], R0 ; R0 now has PCB ad_
0670 372 : ***
0670 373 : *** it is much safer to do
0670 374 : ***
0670 375 : *** MOVL EPID, R0 ; Extended PID to R0
0670 376 : *** JSB EXE$EPID_TO_PCB ; Returns PCB addr in R0
0670 377 : ***
0670 378 : *** The format of the PID is likely to change again in future releases. Calling
0670 379 : *** the routine offers a program much greater insurance against problems from
0670 380 : *** future PID changes.
0670 381 : -
00000000 0670 382 SCH$GL_PIXWIDTH:: ; WIDTH OF PROCESS INDEX FIELD IN
0670 383 .LONG 0 ; THE PID, DETERMINED BY SYSGEN
0674 384 ; MAXPROCESSCNT PARAMETER
0674 385
0000 0674 386 SCH$GW_LOCALNODE:: ; ID FOR LOCAL CLUSTER NODE, USED
0674 387 .WORD 0 ; FOR THE NODE FIELD IN THE EPID

```

PDAT  
V04-000

PROCESS DATA BASE  
PCB ADDRESS VECTOR

D 3

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00  
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1

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(1)

PH  
V0

0000 0676 388  
0676 389  
0678 390

.WORD 0

; SPARE FOR ALIGNMENT

PDAT  
V04-000

PROCESS DATA BASE  
PCB ADDRESS VECTOR

0678 392

.END

E 3

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00  
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1

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(1)

PHI  
VOI

PDAT  
Symbol table

PROCESS DATA BASE

F 3

16-SEP-1984 00:55:06 VAX/VMS Macro V04-00  
5-SEP-1984 03:46:05 [SYS.SRC]PDAT.MAR;1

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(1)

PH  
VO

```

ARB = 000005C4 R 03
ARBSR_RIGHTSDESC = 00000030
ARBSR_RIGHTSLIST = 00000020
ARBSS_LOCALRIGHTS = 00000040
DYN$C_PCB = 0000000C
EXESG$ RIGHTSLIST ***** X 03
EXES$NUCLPROC ***** X 03
EXESSWAPINIT ***** X 03
LR = 000005F4 R 03
LU = 000005FC R 03
MMG$AL_SYSPCB = 00000540 RG 03
NCHAR = 00000000
NULKSP = 00000080 R 02
NULL_EXT_PRIO = 00000000
NULPRD = 00000000 R 03
NULPIX = 00000000
PCBSB_ASTEN = 0000000D
PCBSB_AUTHPRI = 0000002B
PCBSB_PRI = 0000000B
PCBSB_Prib = 0000002F
PCBSB_PribSAV = 00000029
PCBSB_PriSAV = 00000028
PCBSB_TYPE = 0000000A
PCB$C_LENGTH = 00000120
PCB$L_ARB = 0000008C
PCB$L_ASTQFL = 00000010
PCB$L_LOCKQFL = 00000104
PCB$L_PHD = 0000006C
PCB$L_PHYPCB = 00000018
PCB$L_PID = 00000060
PCB$L_SQFL = 00000000
PCB$L_STS = 00000024
PCB$L_UIC = 0000008C
PCBSQ_PRIV = 00000084
PCBST_LNAME = 00000070
PCBSV_PHDRES = 00000012
PCBSV_PSWAPM = 00000004
PCBSV_RES = 00000000
PCBSW_DIOCNT = 0000003E
PCBSW_DIOLM = 00000040
PCBSW_SIZE = 00000008
PCBSW_STATE = 0000002C
PCB... = 00000540 R 03
PHDSB_ASTLVL = 000000CF
PHDSB_AUTHPRI = 0000010C
PHD$C_LENGTH = 0000017C
PHD$L_FREPIVA = 00000030
PHD$L_KSP = 00000078
PHD$L_POBR = 000000C8
PHD$L_POLRASTL = 000000CC
PHD$L_P1BR = 000000D0
PHD$L_P1LR = 000000D4
PHD$L_PC = 000000C0
PHD$L_PCB = 00000078
PHD$L_R4 = 00000098
PHDSQ_PRIVMSK = 00000000
PHDSW_PHVINDEX = 00000042

```

```

PHD... = 000002A0 R 03
SAV... = 00000660 R 03
SCH$C_CUR = 0000000E
SCH$C_MAXPIX = 0000003F G
SCH$C_SWPPIX = 00000001 G
SCH$GL_MAXPIX = 00000668 RG 03
SCH$GL_NULLPCB = 00000180 RG 03
SCH$GL_PCBVEC = 00000660 RG 03
SCH$GL_FIXLAST = 0000066C RG 03
SCH$GL_PIXWIDTH = 00000670 RG 03
SCH$GL_SEQVEC = 00000664 RG 03
SCH$GL_SWPPCB = 00000420 RG 03
SCH$GL_SWPPID = 00000480 RG 03
SCH$GW_LOCALNODE = 00000674 RG 03
SGN$C_BALSETCNT = 00000018 G
SGN$C_DFWSCNT = 00000064 G
SGN$C_DFWSQUOTA = 00000078 G
SGN$C_GBLSECCNT = 00000028 G
SGN$C_MAXGPGCNT = 00000800 G
SGN$C_MAXPAGCNT = 00004000 G
SGN$C_MAXPGFL = 00001000 G
SGN$C_MAXPSTCNT = 00000005 G
SGN$C_MAXVPGCNT = 00002000 G
SGN$C_MAXWSCNT = 00000400 G
SGN$C_MINWSCNT = 0000000A G
SGN$C_NPAGEDYN = 00006800 G
SGN$C_NPROCS = 00000040 G
SGN$C_PAGEDYN = 00004000 G
SGN$C_PHYPAGCNT = 00001000 G
SGN$C_SYSDWSCNT = 00000028 G
SGN$C_SYSVECPGS = 00000005 G
SGN$C_SYSWSCNT = 00000060 G
SWAP_EXT_PRIO = 00000010
SWAP_UIC = 00010004
SWPSA_KSTK = 00000300 RG 02
SWPSK_KSTKSZ = 000000A0 G
SWPKSP = 00000300 R 02
SWPPHD = 000002A0 R 03
SYS_EXT_PRIO = 00000010

```

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

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 ( 0.)	00 ( 0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
\$ABSS	00000000 ( 0.)	01 ( 1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
\$\$\$000_STACKS	00000300 ( 768.)	02 ( 2.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC QUAD
\$\$\$230	00000678 ( 1656.)	03 ( 3.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC QUAD

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

Phase	Page faults	CPU Time	Elapsed Time
Initialization	38	00:00:00.04	00:00:01.93
Command processing	113	00:00:00.52	00:00:03.75
Pass 1	239	00:00:05.87	00:00:20.33
Symbol table sort	0	00:00:00.62	00:00:02.48
Pass 2	118	00:00:01.52	00:00:05.15
Symbol table output	12	00:00:00.09	00:00:00.51
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	524	00:00:08.69	00:00:34.18

The working set limit was 1350 pages.  
41207 bytes (81 pages) of virtual memory were used to buffer the intermediate code.  
There were 30 pages of symbol table space allocated to hold 479 non-local and 0 local symbols.  
392 source lines were read in Pass 1, producing 18 object records in Pass 2.  
22 pages of virtual memory were used to define 16 macros.

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

Macro library name	Macros defined
_\$255\$DUA28:[SYS.OBJ]LIB.MLB;1	6
-\$255\$DUA28:[SYSLIB]STARLET.MLB;2	3
TOTALS (all libraries)	9

524 GETS were required to define 9 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:PDAT/OBJ=OBJ\$:PDAT MSRCS\$:PDAT/UPDATE=(ENH\$:PDAT)+EXECMLS\$/LIB

RELOCDRU LIS

RMSRESET LIS

PROCSTR LIS

PHOUT LIS

PMSDAT LIS

POSTEF LIS

POWERFAL LIS

PRDEF LIS

PTEDUMP LIS

PDAT LIS

RMSVECTOR LIS