```
TTTTTTTTTTTTTTTT  TTTTTTTTTTTTTTTT  DDDDDDDDDDDD     RRRRRRRRRRRR     VVV         VVV  RRRRRRRRRRRR
TTTTTTTTTTTTTTTT  TTTTTTTTTTTTTTTT  DDDDDDDDDDDDD    RRRRRRRRRRRRR    VVV         VVV  RRRRRRRRRRRRR
TTTTTTTTTTTTTTTT  TTTTTTTTTTTTTTTT  DDDDDDDDDDDDD    RRRRRRRRRRRRR    VVV         VVV  RRRRRRRRRRRRR
      TTT               TTT         DDD         DDD  RRR         RRR  VVV         VVV  RRR         RRR
      TTT               TTT         DDD          DDD RRR          RRR VVV         VVV  RRR          RRR
      TTT               TTT         DDD          DDD RRR          RRR VVV         VVV  RRR          RRR
      TTT               TTT         DDD          DDD RRR          RRR VVV         VVV  RRR          RRR
      TTT               TTT         DDD          DDD RRR          RRR VVV         VVV  RRR          RRR
      TTT               TTT         DDD          DDD RRR          RRR VVV         VVV  RRR          RRR
      TTT               TTT         DDD          DDD RRRRRRRRRRRRR    VVV         VVV  RRRRRRRRRRRRR
      TTT               TTT         DDD          DDD RRRRRRRRRRRRR    VVV         VVV  RRRRRRRRRRRRR
      TTT               TTT         DDD          DDD RRRRRRRRRRRRR    VVV         VVV  RRRRRRRRRRRRR
      TTT               TTT         DDD          DDD RRR    RRR       VVV         VVV  RRR    RRR
      TTT               TTT         DDD          DDD RRR    RRR       VVV         VVV  RRR    RRR
      TTT               TTT         DDD          DDD RRR    RRR       VVV         VVV  RRR    RRR
      TTT               TTT         DDD          DDD RRR      RRR      VVV   VVV       RRR      RRR
      TTT               TTT         DDD          DDD RRR      RRR      VVV   VVV       RRR      RRR
      TTT               TTT         DDD          DDD RRR      RRR      VVV   VVV       RRR      RRR
      TTT               TTT         DDDDDDDDDDDDD    RRR        RRR      VVV VVV       RRR        RRR
      TTT               TTT         DDDDDDDDDDDDD    RRR        RRR      VVV VVV       RRR        RRR
      TTT               TTT         DDDDDDDDDDDDD    RRR          RRR     VVVVV         RRR          RRR
      TTT               TTT         DDDDDDDDDDDDD    RRR          RRR     VVVVV         RRR          RRR
```

FILEID**TTYSYNCH

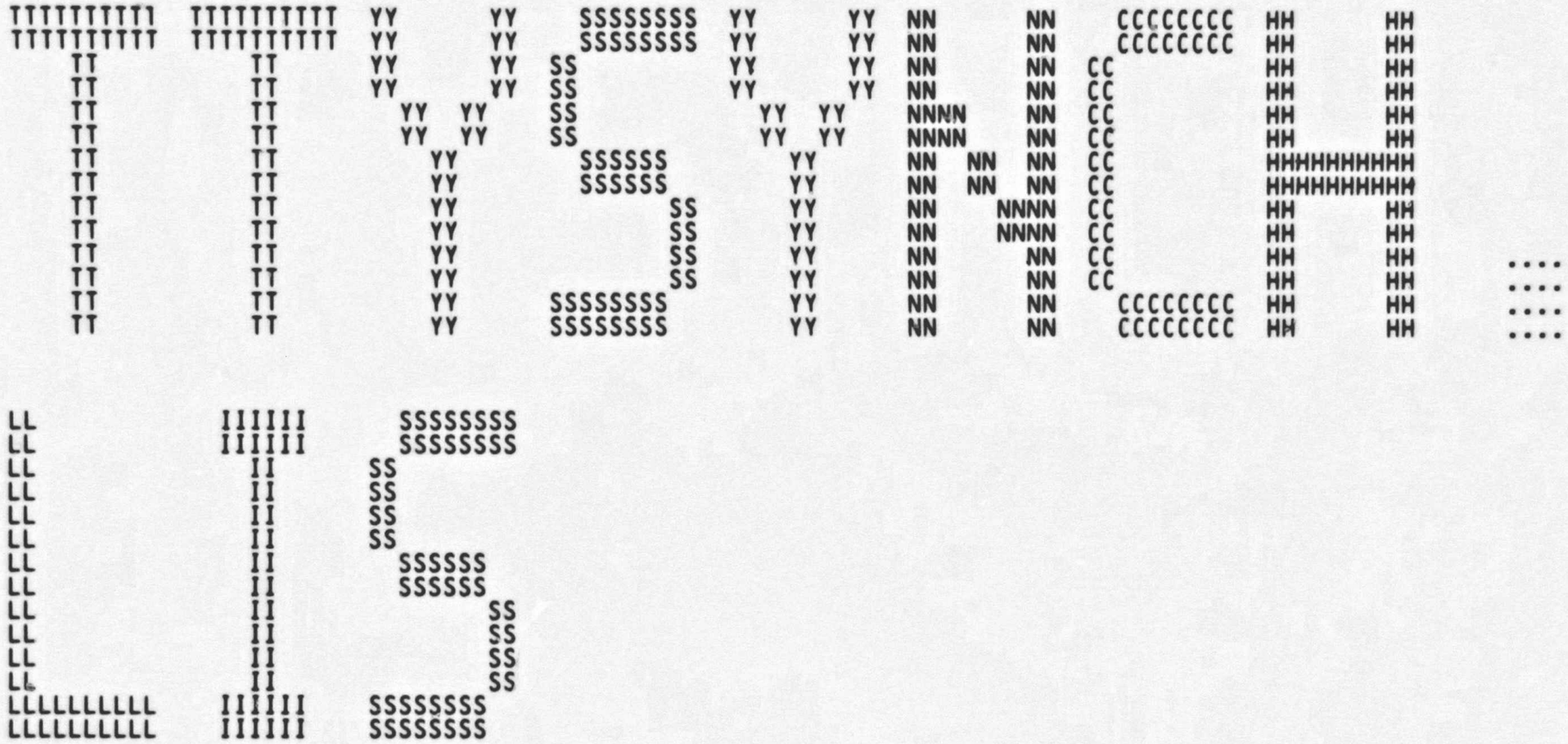

Table of contents

```
0000     1          .TITLE  TTYSYNCH - THIS MODULE CONTAINS SYNCHRONIZATION ROUTINES FOR TTDRVR
0000     2          .IDENT  'V04-001'
0000     3
0000     4 ;
0000     5 ;*****************************************************************************
0000     6 ;*                                                                           *
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0000    24 ;*                                                                           *
0000    25 ;*                                                                           *
0000    26 ;*****************************************************************************
0000    27 ;
0000    28 ;
0000    29 ; Author:
0000    30 ;
0000    31 ;       Michael I. Rosenblum 10/7/83
0000    32 ;
0000    33 ; Description:
0000    34 ;
0000    35 ;       THIS MODULE PROVIDES THE SET OF ROUTINES NECESSARY TO IMPLIMENT
0000    36 ; A SYNCHRONIZATION TECHNEQUE BASED ON IPL FOR THE VMS TERMINAL DRIVER
0000    37 ;
0000    38 ;--
0000    39 ;
0000    40 ; Edit History
0000    41 ;
0000    42 ;       V04-001 MIR1100         Michael I. Rosenblum            7-Sep-1984
0000    43 ;               Fix bug where R0 would be set to 1 if the ipl was already
0000    44 ;               below IPL$_SYNCH.
0000    45 ;               Fix bug that would let the ACB allocation routine run off
0000    46 ;               The end of the pool. Allocate more pool.
0000    47 ;
0000    48 ;       V03-001 MIR0320         Michael I. Rosenblum            17-Feb-1984
0000    49 ;               Fix bug in the loading of R2 by ttylock we must make sure
0000    50 ;               That we are in physical context.
0000    51 ;
```

```
                                                0000     53          $FKBDEF
                                                0000     54          $ACBDEF
                                                0000     55          $UCBDEF
                                                0000     56          $TTYDEFS
                                                0000     57          $TTYDEF
                                                0000     58          $TTDEF
                                                0000     59          $TT2DEF
                                                0000     60          $IPLDEF
                                                0000     61
                                            00000000     62          .PSECT  $$$115_DRIVER,LONG
                                                0000     63
                                                0000     64          .sbttl  TTY$SYNCH - common routine that provides necessary synchronization
                                                0000     65 ;++
                                                0000     66 ; EXE$FORK - replaces the functionality of EXE$FORK
                                                0000     67 ;
                                                0000     68 ; Description:
                                                0000     69 ;
                                                0000     70 ;       This routine is the basis of synchronization for the terminal class
                                                0000     71 ; driver.  For normal controlers  this is implimented by a normal fork call
                                                0000     72 ; for controlers that whish to run in process context specail kernal AST's
                                                0000     73 ; may be used, in user mode the lock manager may be used.
                                                0000     74 ;
                                                0000     75 ;
                                                0000     76 ; INPUTS:
                                                0000     77 ;
                                                0000     78 ;       00(SP) = RETURN ADDRESS OF CALLER.
                                                0000     79 ;       04(SP) = PROCESS PID TO USE FOR THIS FORK
                                                0000     80 ;       08(SP) = RETURN ADDRESS OF CALLER'S CALLER.
                                                0000     81 ;
                                                0000     82 ;       R5 = ADDRESS OF FORK BLOCK.
                                                0000     83 ;
                                                0000     84 ; OUTPUTS:
                                                0000     85 ;
                                                0000     86 ;       ***TBS***
                                                0000     87 ;-
                                                0000     88 TTY$SYNCH::                                  ;CREATE FORK PROCESS
                                                0000     89
                                     02    0B A5   91    0000     90          CMPB    FKB$B_FIPL(R5),#2       ; ARE WE FORKING TO IPL2?
                                                09   13    0004     91          BEQL    DEL_SPKNL               ; YES THEN DELIVER THINGS DIFFERENTLY
                                           6E    8E   D0    0006     92          MOVL    (SP)+,(SP)              ; NORMAL FORK THEN REMOVE PID FROM STACK
                                     00000000'GF    17    0009     93          JMP     g^EXE$FORK              ; THEN FORK
                                                      000F     94 DEL_SPKNL:
                                     10 A5    53   7D    000F     95          MOVQ    R3,FKB$L_FR3(R5)        ; SAVE FORK R3 AND R4
                                           0C A5 8ED0    0013     96          POPL    FKB$L_FPC(R5)           ; GET A FORK PC
                                                53 8ED0  0017     97          POPL    R3                      ; GET PID
                                                07   12    001A     98          BNEQ    5$                      ; IS THERE A PID
                                     53    00010001 8F    D0    001C     99          MOVL    #^X10001,R3             ; NO THEN USE THE SWAPPER
                                                      0023    100 5$:
                          00000B4D'EF    00000B2D'EF    DE    0023    101          MOVAL   TTY$FORK_POOL_END-TTY$K_FXT_LENGTH,TTY$FORK_POOL_END
                                     54   000001ED'EF    9E    002E    102          MOVAB   TTY$FORK_POOL,R4        ; GET THE ADDRESS OF THE FORK POOL
                                      14 64    00   E3    0035    103 10$:     BBCS    #0,(R4),20$             ; SET THE BUSY BIT  AND EXIT WITH THIS ADDRE
                54   00000020'8F    00000B4D'EF    F1    0039    104          ACBL    TTY$FORK_POOL_END,#TTY$K_FXT_LENGTH,R4,10$; MOVE TO THE NEXT BLOCK
                                                FFEE  0045
                                     FFFFFFFF'FF    D5    0047    105          TSTL    @-1
                                                      004D    106 20$:
                                        54    04   C0    004D    107          ADDL    #4,R4                   ; MOVE PAST THE LOCAL STATUS WORD
                                      14 A4    55   D0    0050    108          MOVL    R5,ACB$L_ASTPRM(R4)     ; KEEP THE REAL FORK BLOCK FOR LATER USE
```

```
                        55    DD  0054   109          PUSHL   R5                          ; SAVE THIS FOR LATER
                     55 54    D0  0056   110          MOVL    R4,R5                       ; MAKE R5 THE ACB
                  0C A5 53    D0  0059   111          MOVL    R3,ACB$L_PID(R5)            ; PUT IN THE PID
                  0B A5 30    90  005D   112          MOVB    #ACB$M_PRAST!ACB$M_NODELETE,ACB$B_RMOD(R5); MAKE THIS A SPECAIL KERN
              10 A5  000000CD'EF 9E  0061   113          MOVAB   L1,ACB$L_AST(R5)            ; GET THE AST ADDRESS
              18 A5  000000DB'EF 9E  0069   114          MOVAB   FREE_ACB,ACB$L_KAST(R5); A PIGGY BACK AST TO DEASSIGN THE AASTBLK
                        52    DD  0071   115          PUSHL   R2                          ; SAVE R2 AS WELL AS R5
                  000000E8'EF 9F  0073   116          PUSHAB  RESTR5                      ; RESTORE R5 AFTER QUEUEING THE FORK
                 54 00000000'8F DB  0079   117          MFPR    #PR$_IPL,R4                 ; GET THE CURRENT IPL
                     53 55    D0  0080   118          MOVL    R5,R3                       ; SAVE THE ACB ADDRESS
                     08 54    D1  0083   119          CMPL    R4,#IPL$_SYNCH              ; ARE WE AT SYNC OR BELOW?
                        34    15  0086   120          BLEQ    60$
                              0088   121 ;
                              0088   122 ; we need a fork block to get to IPL queueast before we can queue an ast
                              0088   123 ;
                 54 000001ED'EF 9E  0088   124          MOVAB   TTY$FORK_POOL,R4            ; GET THE ADDRESS OF THE FORK POOL
                   14 64    00  E3  008F   125 40$:     BBCS    #0,(R4),50$                 ; SET THE BUSY BIT  AND EXIT WITH THIS ADDRE
54 00000020'8F  00000B4D'EF    F1  0093   126          ACBL    TTY$FORK_POOL_END,#TTY$K_FXT_LENGTH,R4,40$; MOVE TO THE NEXT BLOCK
                           FFEE 009F
                 FFFFFFFF'FF   D5  00A1   127          TSTL    @-1
                     54    04  C0  00A7   128 50$:     ADDL    #4,R4                       ; MOVE BEAOND THE STATUS LONGWORD
                  0B A4    06  90  00AA   129          MOVB    #IPL$_QUEUEAST,FKB$B_FIPL(R4);
                     55    54  D0  00AE   130          MOVL    R4,R5                       ; SETUP THIS ADDRESS TO FORK ON
                              00B1   131
                 00000000'GF 16  00B1   132          JSB     g^EXE$FORK                  ; CALL OURSELFS WITH A NON-IPL 2 IPL
                              00B7   133 ;
                              00B7   134 ; When the fork returns then queue the ast
                              00B7   135 ;
              00 FC A5    00  E5  00B7   136          BBCC    #0,-4(R5),60$               ; FREE THE FORK BLOCK
                     55    53  D0  00BC   137 60$:     MOVL    R3,R5
                           52  D4  00BF   138          CLRL    R2                          ; NO PRIORITY BOOST NECESSARY
                           50  DD  00C1   139          PUSHL   R0
                 00000000'GF 16  00C3   140          JSB     G^SCH$QAST                  ; QUEUE ST
                           50 8ED0  00C9   141          POPL    R0
                              05  00CC   142          rsb
                              00CD   143 ;
                              00CD   144 ; RETURN HERE AFTER THE AST IS FIRED
                              00CD   145 ;
                        003C  00CD   146 L1:        .WORD   ^M<R2,R3,R4,R5>             ; SAVE SOME REGISTERS
                  55 04 AC    D0  00CF   147          MOVL    4(AP),R5                    ; RESTORE THE REAL FORK BLOCK ADDRESS
                              00D3   148
                  53 10 A5    7D  00D3   149 30$:     MOVQ    FKB$L_FR3(R5),R3            ; THE FORK BLOCK AND REGISTERS THEN
                              00D7   150                                                  ; RETURN
                     0C B5    16  00D7   151          JSB     @FKB$L_FPC(R5)              ; GOTO THE ROUTINE
                              04  00DA   152          RET                                 ; RETURN TO THE SYSTEM
                              00DB   153 ;
                              00DB   154 ; CALLED AS A PIGGYBACK AST TO THE NORMAL AST
                              00DB   155 ;
                              00DB   156 FREE_ACB:
              00 FC A5    00  E5  00DB   157          BBCC    #0,-4(R5),30$               ; NOW CLEAR THE BUSY BIT
55 00000B6D'EF            DE  00E0   158 30$:     MOVAL   TTY$NODELACB,R5             ; MAKE SURE WE DO NOT DELETE THIS ACB
                              05  00E7   159          RSB                                 ; NOW RETURN
                              00E8   160 ;
                              00E8   161 ; RESTORE USED REGISTERS BEFORE RETURNING TO THE HIGHER LEVEL
                              00E8   162 ;
                              00E8   163 RESTR5:                                          ; RESTORE R5 AFTER CALLING FORK
                           52 8ED0  00E8   164          POPL    R2                          ; RESTORE R2
```

```
55 8ED0  00EB   165          POPL    R5
     05  00EE   166          RSB
```

```
                                00EF   168          .SBTTL  TTY$LOCK - SETUP IPL AND REGISTERS
                                00EF   169
                                00EF   170 ; ++
                                00EF   171 ; TTY$LOCK - SETUP IPL AND REGISTER CO-ROUTINE
                                00EF   172 ;
                                00EF   173 ; FUNCTIONAL DESCRIPTION:
                                00EF   174 ;
                                00EF   175 ; THIS IS A CO-ROUTINE THAT DISABLES INTERRUPTS TO THE IPL IN UCB$B_DIPL
                                00EF   176 ; AND SETS UP A POINTER TO THE UNIT STATE VECTOR.
                                00EF   177 ;
                                00EF   178 ; SUBSEQUENT RETURN CAUSES IPL TO BE RETURNED.
                                00EF   179 ;
                                00EF   180 ; INPUTS:
                                00EF   181 ;
                                00EF   182 ;       R5 = UCB ADDRESS
                                00EF   183 ;
                                00EF   184 ; OUTPUTS:
                                00EF   185 ;
                                00EF   186 ;       R1 IS DESTROYED.
                                00EF   187 ;
                                00EF   188 ;       R2 = ADDRESS OF THE UNIT STATE VECTOR
                                00EF   189 ;       R5 = UCB ADDRESS
                                00EF   190 ;--
                                00EF   191
                                00EF   192 TTY$LOCK::                               ; SETUP IPL AND REGISTERS
                      51    6E  D0   00EF   193          MOVL    (SP),R1              ; GET RETURN ADDRESS
                6E  00000000'8F  DB   00F2   194          MFPR    #PR$_IPL,(SP)        ; GET THE CURRENT IPL
                   6E    5E A5  91   00F9   195          CMPB    UCB$B_DIPL(R5),(SP)  ; If already at device IPL or
                             04  1B   00FD   196          BLEQU   10$                  ; higher, branch forward.
                                 00FF   197          SETIPL  UCB$B_DIPL(R5)       ; Else, raise to device IPL.
                         02    5E A5  91   0103   198 10$:     CMPB    UCB$B_DIPL(R5),#IPL$_ASTDEL; ARE WE AT ASTDEL OR GOING THERE?
                                   16  13   0107   199          BEQL    20$                  ; YES THEN HANDLE SPECAILLY
                      52    00A0 C5  D0   0109   200 30$:     MOVL    UCB$L_TL_PHYUCB(R5),R2  ; MAKE SURE WE ARE IN PHYSICAL CONTEXT
                      52    00B8 C2  9E   010E   201          MOVAB   UCB$Q_TT_STATE(R2),R2   ; SETUP STATE VECTOR POINTER
                                   61  16   0113   202          JSB     (R1)                 ; CALL CALLER BACK
                         02    5E A5  91   0115   203          CMPB    UCB$B_DIPL(R5),#IPL$_ASTDEL; ARE WE AT ASTDEL OR GOING THERE?
                                   03  13   0119   204          BEQL    40$                  ; YES THEN HANDLE SPECAILLY
                                       011B   205          ENBINT                       ; ENABLE INTERRUPTS
                                   05  011E   206 40$:     RSB                          ;
                                       011F   207
                                       011F   208 20$:
      00000B4D'EF     00000B2D'EF  DE   011F   209          MOVAL   TTY$FORK_POOL_END-TTY$K_FXT_LENGTH,TTY$FORK_POOL_END
                            8E  02  D1   012A   210          CMPL    #IPL$_ASTDEL,(SP)+   ; ARE WE ALREADY AT ASTDEL?
                                   21  12   012D   211          BNEQ    60$                  ; NO THEN WE MUST FORK
                                   51  DD   012F   212          PUSHL   R1                   ; KEEP THE RETURN LOCATION
                      51    2C A5  3C   0131   213          MOVZWL  UCB$L_PID(R5),R1     ; GET THE PID INDEX
                                   03  12   0135   214          BNEQ    50$
                               51  01  D0   0137   215          MOVL    #1,R1                ; NO PID USE SWAPPER
                   7E   00000000'GF  D0   013A   216 50$:     MOVL    g^sch$gl_pcbvec,-(sp)    ; get the location of the pcb
                00000000'GF    8E41  D1   0141   217          CMPL    (sp)+[R1],G^SCH$GL_CURPCB        ; ARE WE CURRENTLY ACTIVE
                                   07  12   0149   218          BNEQ    70$                  ; YES THEN NO FORK NECESSARY
                                   51 8ED0  014B   219          POPL    R1                   ; RESTORE R1
                                   B9  11   014E   220          BRB     30$
                                   51  DD   0150   221 60$:     PUSHL   R1                   ; SAVE THE RETURN ADDRESS
                      51    000001ED'EF  9E   0152   222 70$:     MOVAB   TTY$FORK_POOL,R1     ; GET THE ADDRESS OF THE FORK POOL
                        14 61    00  E3   0159   223 200$:    BBCS    #0,(R1),250$         ; SET THE BUSY BIT  AND EXIT WITH THIS ADDRE
51  00000020'8F   00000B4D'EF  F1   015D   224          ACBL    TTY$FORK_POOL_END,#TTY$K_FXT_LENGTH,R1,200$; MOVE TO THE NEXT BLOCK
```

```
                                FFEE  0169
                FFFFFFFF'FF      D5  016B   225          TSTL    @-1
                     51    04    C0  0171   226 250$:    ADDL    #4,R1                   ; MOVE BEAOND THE STATUS LONGWORD
                  10 A1    53    7D  0174   227          MOVQ    R3,FKB$L_FR3(R1)        ; SAVE R3 AND R4
                     53    51    D0  0178   228          MOVL    R1,R3                   ; KEEP THE FORK BLOCK
                           54 8ED0  017B   229          POPL    R4                      ; AND THE RETURN ADDRESS
                000001E0'EF      9F  017E   230          PUSHAB  REST_REGS               ; RESTOR THE NECESSARY REGISTERS
                   7E    2C A5    D0  0184   231          MOVL    UCB$L_PID(R5),-(SP)     ; PUT THE PID ON THE STACK
                           07    12  0188   232          BNEQ    80$                     ; NO PID
             6E    00010001 8F    D0  018A   233          MOVL    #^X10001,(SP)           ; THEN USE SWAPPER
                                    0191   234 80$:
             51    000001ED'EF    9E  0191   235          MOVAB   TTY$FORK_POOL,R1        ; GET THE ADDRESS OF THE FORK POOL
                      14 61    00  E3  0198   236 90$:    BBCS    #0,(R1),T00$            ; SET THE BUSY BIT  AND EXIT WITH THIS ADDRE
51   00000020'8F    00000B4D'EF    F1  019C   237          ACBL    TTY$FORK_POOL_END,#TTY$K_FXT_LENGTH,R1,90$; MOVE TO THE NEXT BLOCK
                                FFEE  01A8
                FFFFFFFF'FF      D5  01AA   238          TSTL    @-1
                     51    04    C0  01B0   239 100$:    ADDL    #4,R1                   ; MOVE BEAOND THE STATUS LONGWORD
                  18 A1    55    D0  01B3   240          MOVL    R5,ACB$L_KAST(R1)       ; PLACE R5 IN AN UNUSED LOCATION
             0B A1    0B A5    90  01B7   241          MOVB    UCB$B_FIPL(R5),FKB$B_FIPL(R1); SETUP THE FORK IPL
                55    51    D0  01BC   242          MOVL    R1,R5                   ; MAKE THIS THE FORK BLOCK
                      FE3E    30  01BF   243          BSBW    TTY$SYNCH               ; AND SYNCHRONIZE
                51    55    D0  01C2   244          MOVL    R5,R1                   ; GET THE FORK BLOCK ADDRESS
             55    18 A1    D0  01C5   245          MOVL    ACB$L_KAST(R1),R5       ; GET THE UCB ADDRESS
          00 FC A1    00    E4  01C9   246          BBSC    #0,-4(R1),130$          ; NOW CLEAR THE BUSY BIT
                52    53    D0  01CE   247 130$:    MOVL    R3,R2                   ; GET THE AUXILLARY BLOCK
                51    54    D0  01D1   248          MOVL    R4,R1                   ; AND THE RETURN ADDRESS
             53    10 A2    7D  01D4   249          MOVQ    FKB$L_FR3(R2),R3        ; RESTORE R3 AND R4
          00 FC A2    00    E4  01D8   250          BBSC    #0,-4(R2),140$          ; FREE THE AUXILLIARY BLOCK
                      FF29    31  01DD   251 140$:    BRW     30$
                                01E0   252 REST_REGS:
          53    10 A5    7D  01E0   253          MOVQ    FKB$L_FR3(R5),R3        ; RESTORE THE REGISTERS
          55    18 A5    D0  01E4   254          MOVL    ACB$L_KAST(R5),R5       ; GET R5 BACK
          53    10 A3    7D  01E8   255          MOVQ    FKB$L_FR3(R3),R3        ; RESTORE THE REGISTERS
                         05  01EC   256          RSB                             ; AND RETURN
```

```
00000020  01ED   258 TTY$K_FXT_LENGTH=ACB$K_LENGTH+4
          01ED   259 TTY$FORK_POOL:
          01ED   260 .REPEAT 75
          01ED   261         .BLKB   TTY$K_FXT_LENGTH
0000020D  01ED   262 .ENDR
          0B4D   263
          0B4D   264 TTY$FORK_POOL_END:
00000B6D  0B4D   265         .BLKB   TTY$K_FXT_LENGTH
          0B6D   266 TTY$NODELACB:
00000B78  0B6D   267         .BLKB   ACB$B_RMOD
       20 0B78   268         .BYTE   ACB$M_NODELETE
00000B8A  0B79   269         .BLKB   ACB$K_LENGTH-ACB$B_RMOD
          0B8A   270         .END
```

```
ACB$B_RMOD                      = 0000000B
ACB$K_LENGTH                    = 0000001C
ACB$L_AST                       = 00000010
ACB$L_ASTPRM                    = 00000014
ACB$L_KAST                      = 00000018
ACB$L_PID                       = 0000000C
ACB$M_NODELETE                  = 00000020
ACB$M_PKAST                     = 00000010
DEL_SPKNL                         0000000F R      02
EXE$FORK                          ******** X    02
FKB$B_FIPL                      = 0000000B
FKB$L_FPC                       = 0000000C
FKB$L_FR3                       = 00000010
FREE_ACB                          000000DB R      02
IPL$_ASTDEL                     = 00000002
IPL$_QUEUEAST                   = 00000006
IPL$_SYNCH                      = 00000008
L1                                000000CD R      02
PR$_IPL                           ******** X    02
RESTR5                            000000E8 R      02
REST_REGS                         000001E0 R      02
SCH$GL_CURPCB                     ******** X    02
SCH$GL_PCBVEC                     ******** X    02
SCH$QAST                          ******** X    02
TTY$FORK_POOL                     000001ED R      02
TTY$FORK_POOL_END                 00000B4D R      02
TTY$K_FXT_LENGTH                = 00000020
TTY$LOCK                          000000EF RG     02
TTY$NODELACB                      00000B6D R      02
TTY$SYNCH                         00000000 RG     02
UCB$B_DIPL                      = 0000005E
UCB$B_FIPL                      = 0000000B
UCB$L_PID                       = 0000002C
UCB$L_TL_PHYUCB                 = 000000A0
UCB$Q_TT_STATE                  = 000000B8
```

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
$$$115_DRIVER	00000B8A (2954.)	02 (2.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC LONG

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	30	00:00:00.04	00:00:00.31
Command processing	126	00:00:00.36	00:00:01.01
Pass 1	341	00:00:07.92	00:00:16.63
Symbol table sort	0	00:00:01.30	00:00:02.98
Pass 2	68	00:00:01.41	00:00:03.14

Symbol table output	6	00:00:00.04	00:00:00.04
Psect synopsis output	1	00:00:00.01	00:00:00.01
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	574	00:00:11.10	00:00:24.14

The working set limit was 1350 pages.
64181 bytes (126 pages) of virtual memory were used to buffer the intermediate code.
There were 70 pages of symbol table space allocated to hold 1203 non-local and 22 local symbols.
270 source lines were read in Pass 1, producing 15 object records in Pass 2.
27 pages of virtual memory were used to define 26 macros.

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

Macro library name	Macros defined
_255DUA28:[SYS.OBJ]LIB.MLB;1	17
_255DUA28:[SYSLIB]STARLET.MLB;2	5
TOTALS (all libraries)	22

1336 GETS were required to define 22 macros.

There were no errors, warnings or information messages.

```
MACRO/LIS=LIS$:TTYSYNCH/OBJ=OBJ$:TTYSYNCH MSRC$:TTYSYNCH/UPDATE=(ENH$:TTYSYNCH)+EXECML$/LIB
```