L 12

```
   SSSSSSSSSSSS  YYY         YYY     SSSSSSSSSSSS
   SSSSSSSSSSSS  YYY         YYY     SSSSSSSSSSSS
   SSSSSSSSSSSS  YYY         YYY     SSSSSSSSSSSS
SSS              YYY         YYY  SSS
SSS              YYY         YYY  SSS
SSS              YYY         YYY  SSS
SSS                 YYY   YYY     SSS
SSS                 YYY   YYY     SSS
SSS                 YYY   YYY     SSS
   SSSSSSSSS           YYY           SSSSSSSSS
   SSSSSSSSS           YYY           SSSSSSSSS
   SSSSSSSSS           YYY           SSSSSSSSS
            SSS        YYY                    SSS
            SSS        YYY                    SSS
            SSS        YYY                    SSS
            SSS        YYY                    SSS
            SSS        YYY                    SSS
            SSS        YYY                    SSS
SSSSSSSSSSSS           YYY        SSSSSSSSSSSS
SSSSSSSSSSSS           YYY        SSSSSSSSSSSS
SSSSSSSSSSSS           YYY        SSSSSSSSSSSS
```

```
_$

Ps
--

YZ

Z$

Z$

Z$

Z$

Z$

Z$

Z$

Z$

Z$

Z$

Z$

Z$
```

```
                                    I 16
**FILE**ID**SYSRUNDWN

  SSSSSSSS  YY      YY    SSSSSSSS  RRRRRRRR    UU      UU  NN      NN  DDDDDDDD    WW      WW  NN      NN
  SSSSSSSS  YY      YY    SSSSSSSS  RRRRRRRR    UU      UU  NN      NN  DDDDDDDD    WW      WW  NN      NN
SS          YY      YY  SS          RR      RR  UU      UU  NN      NN  DD      DD  WW      WW  NN      NN
SS          YY      YY  SS          RR      RR  UU      UU  NN      NN  DD      DD  WW      WW  NN      NN
SS            YY  YY    SS          RR      RR  UU      UU  NNNN    NN  DD      DD  WW      WW  NNNN    NN
SS            YY  YY    SS          RR      RR  UU      UU  NNNN    NN  DD      DD  WW      WW  NNNN    NN
  SSSSSS        YY        SSSSSS    RRRRRRRR    UU      UU  NN  NN  NN  DD      DD  WW      WW  NN  NN  NN
  SSSSSS        YY        SSSSSS    RRRRRRRR    UU      UU  NN  NN  NN  DD      DD  WW      WW  NN  NN  NN
        SS      YY              SS  RR  RR      UU      UU  NN    NNNN  DD      DD  WW  WW  WW  NN    NNNN
        SS      YY              SS  RR  RR      UU      UU  NN    NNNN  DD      DD  WW  WW  WW  NN    NNNN
        SS      YY              SS  RR    RR    UU      UU  NN      NN  DD      DD  WWWW  WWWW  NN      NN      ....
        SS      YY              SS  RR    RR    UU      UU  NN      NN  DD      DD  WWWW  WWWW  NN      NN      ....
SSSSSSSS        YY      SSSSSSSS    RR      RR  UUUUUUUUUU  NN      NN  DDDDDDDD    WW      WW  NN      NN      ....
SSSSSSSS        YY      SSSSSSSS    RR      RR  UUUUUUUUUU  NN      NN  DDDDDDDD    WW      WW  NN      NN      ....


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

```
0000            .TITLE  SYSRUNDWN IMAGE RUNDOWN SYSTEM SERVICE
0000            .IDENT  'V04-000'
0000
0000    ;
0000    ;****************************************************************************
0000    ;*                                                                          *
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0000    ;*                                                                          *
0000    ;*                                                                          *
0000    ;****************************************************************************
0000
0000    ;++
0000    ; FACILITY: EXECUTIVE, SYSTEM SERVICES
0000    ;
0000    ; ABSTRACT:
0000    ;
0000    ; ENVIRONMENT:
0000    ;
0000    ;--
0000    ;
0000    ;
0000            .PAGE
0000            .SBTTL  HISTORY                   ; DETAILED
0000    ;
0000    ; AUTHOR:       R. HUSTVEDT      CREATION DATE: 10-OCT-76
0000    ;
0000    ; MODIFIED BY:
0000    ;
0000    ;       V03-018 WMC0002         Wayne Cardoza           28-Aug-1984
0000    ;               Don't try to delete logical names if no pointer to them.
0000    ;
0000    ;       V03-017 RAS0316         Ron Schaefer            25-Jun-1984
0000    ;               Change TMK0001 so that we delete ALL process-private
0000    ;               logical names, not just those in the process table.
0000    ;               Use new LNM internal routine LNM$DELETE_HASH, which
0000    ;               assumes that all protection/privileges have been checked.
0000    ;               This is ECO 4 in the FT2 update.
0000    ;
0000    ;       V03-016 LJK0272         Lawrence J. Kenah       10-Apr-1984
0000    ;               Reinitialize array of starting points for privileged vectors.
0000    ;
0000    ;       V03-015 TMK0001         Todd M. Katz            03-Apr-1984
```

```
0000  ;                 Change the deletion of image logical names within the process
0000  ;                 logical name table so that the $DELLNM system service is used
0000  ;                 instead of the $DELLOG system service.
0000  ;
0000  ;         V03-014 SSA0018         Stan Amway              9-Mar-1984
0000  ;                 Rundown page fault monitoring activity.
0000  ;
0000  ;         V03-013 RSH0092         R. Scott Hanna          31-Jan-1984
0000  ;                 Modify the security auditing process rundown support to
0000  ;                 use the new IDT dedicated pages.
0000  ;
0000  ;         V03-012 CDS0001         Christian D. Saether    16-Dec-1983
0000  ;                 Add comments reflecting new use by F11BXQP of the
0000  ;                 CCB$B_AMOD field.
0000  ;
0000  ;         V03-011 RSH0067         R. Scott Hanna          22-Sep-1983
0000  ;                 Move the RDI table deallocation to earlier in the rundown.
0000  ;
0000  ;         V03-010 RSH0022         R. Scott Hanna          23-May-1983
0000  ;                 Add process rundown support to deallocate the Security
0000  ;                 Auditing Impure Data Table (IDT) and deassign the the
0000  ;                 Audit Journal.
0000  ;
0000  ;         V03-009 SRB0084         Steve Beckhardt         29-Apr-1983
0000  ;                 Added LCK$M_INVVALBLK flag to $DEQ to invalidate value
0000  ;                 blocks of locks being dequeued at high lock modes.
0000  ;
0000  ;         V03-008 JLV0231         Jake VanNoy             24-FEB-1983
0000  ;                 Add checking of CCB$V_IMGTMP flag in running down channels.
0000  ;
0000  ;         V03-007 RSH0003         R. Scott Hanna          10-Feb-1983
0000  ;                 Add rundown processing to deallocate the RDI table
0000  ;                 and zero CTL$GL_RDIPTR.
0000  ;
0000  ;         V03-006 JWH0135         Jeffrey W. Horn         23-Nov-1982
0000  ;                 Add rundown processing for CTL$GQ_P0ALLOC and
0000  ;                 CTL$GL_PRCALLCNT.
0000  ;
0000  ;         V03-005 ACG0301         Andrew C. Goldstein,    21-Oct-1982  13:39
0000  ;                 Restore FILCNTNONZ bugcheck
0000  ;
0000  ;         V03-004 WMC0001         Wayne Cardoza           26-Aug-1982
0000  ;                 Make the privileged library vector reset a subroutine.
0000  ;
0000  ;         V03-003 LJK0164         Lawrence J. Kenah       20-Apr-1982
0000  ;                 Clear byte following RSB in privileged vector rundown loop
0000  ;                 so that next activation of privileged image succeeds.
0000  ;
0000  ;         V03-002 LJK0158         Lawrence J. Kenah       9-Apr-1982
0000  ;                 Reset privileged vectors with process-specific array
0000  ;                 to allow some vectors to survive image exit.
0000  ;
0000  ;         V03-001 ACG0278         Andrew C. Goldstein,    1-Apr-1982  10:30
0000  ;                 Enable resource wait mode during rundown,
0000  ;                 disable channel deassignment bug trap
0000  ;
0000  ;
```

```
                                    0000     116         .SBTTL  DECLARATIONS
                                    0000     117
                                    0000     118 ;
                                    0000     119 ; INCLUDE FILES:
                                    0000     120 ;
                                    0000     121
                                    0000     122         $ACBDEF                         ; DEFINE AST CONTROL BLOCK
                                    0000     123         $ACMDEF                         ; DEFINE ACCOUNTING MESSAGE OFFSETS
                                    0000     124         $CCBDEF                         ; DEFINE CHANNEL CONTROL BLOCK
                                    0000     125         $IPLDEF                         ; DEFINE INTERRUPT PRIORITIES
                                    0000     126         $LCKDEF                         ; DEFINE $ENQ/$DEQ FLAGS
                                    0000     127         $NSAIDTDEF                      ; DEFINE THE SECURITY AUDITING IDT OFFSETS
                                    0000     128         $OPDEF                          ; DEFINE OPCODE SYMBOLIC CONSTANTS
                                    0000     129         $PCBDEF                         ; DEFINE PCB OFFSETS
                                    0000     130         $PHDDEF                         ; DEFINE PROCESS HEADER OFFSETS
                                    0000     131         $PRDEF                          ; DEFINE PROCESSOR REGISTERS
                                    0000     132         $RDIDEF                         ; DEFINE RIGHTS DATABASE IDENTIFIER BLOCK OF
                                    0000     133         $SSDEF                          ; DEFINE STATUS CODES
                                    0000     134
                                    0000     135 ;
                                    0000     136 ; EQUATED SYMBOLS:
                                    0000     137 ;
                          00000004  0000     138 ACMODE=4                                ; DISPLACEMENT TO ACCESS MODE ARGUMENT
                                    0000     139
                          00000000  0000     140 NXTKVEC=0                       ;OFFSET TO NEXT FREE KERNEL VECTOR
                          00000100  0000     141 NXTEVEC=256                     ;OFFSET TO NEXT FREE EXEC VECTOR
                          00000200  0000     142 NXTRVEC=512                     ;OFFSET TO NEXT FREE RUNDWN VECTOR
                          00000300  0000     143 NXTMVEC=768                     ;OFFSET TO NEXT MESSAGE VECTOR
                                    0000     144
                                    0000     145 ;
                                    0000     146 ; STATIC DATA DEFINITIONS:
                                    0000     147 ;
                                00000000     148         .PSECT  YEXEPAGED
                                    0000     149
                                    0000     150 PROC_TABLE:                             ; PROCESS LOGICAL NAME TABLE NAME
52 50 24 4D 4E 4C 00000008'010E0000' 0000    151         .ASCID  /LNM$PROCESS/
                     53 53 45 43 4F  000E
```

```
                              0013           .SBTTL  EXE$RUNDWN - IMAGE RUNDOWN SYSTEM SERVICE
                              0013
                              0013     ;++
                              0013     ; FUNCTIONAL DESCRIPTION:
                              0013     ;        EXE$RUNDWN TERMINATES ALL PENDING ACTIVITY FOR THE SPECIFIED
                              0013     ;        AND ALL LESS PRIVILEGED ACCESS MODES.  ALL RESOURCES ASSOCIATED
                              0013     ;        WITH THE PENDING ACTIVITY WILL BE RELEASED IF APPROPRIATE
                              0013     ;
                              0013     ; CALLING SEQUENCE:
                              0013     ;        CALLG   ARGLIST,EXE$RUNDWN
                              0013     ;
                              0013     ; INPUT PARAMETERS:
                              0013     ;        ACMODE(AP) - ACCESS MODE BOUNDARY FOR WHICH RUNDOWN IS TO BE PERFORMED
                              0013     ;                        (MAXIMIZED WITH THE ACCESS MODE OF THE CALLER)
                              0013     ;
                              0013     ; IMPLICIT INPUTS:
                              0013     ;        R4 - POINTER TO CURRENT PCB
                              0013     ;
                              0013     ; OUTPUT PARAMETERS:
                              0013     ;        NONE
                              0013     ;
                              0013     ; IMPLICIT OUTPUTS:
                              0013     ;        ALL ACTIVITY INITIATED BUT NOT COMPLETED FOR ALL ACCESS MODES
                              0013     ;        HAVING THE SAME OR LESSER PRIVILEGE THAN THAT SPECIFIED WILL
                              0013     ;        BE TERMINATED.
                              0013     ;
                              0013     ; COMPLETION CODES:
                              0013     ;        SS$_NORMAL   -  SUCCESSFUL COMPLETION
                              0013     ;
                              0013     ; SIDE EFFECTS:
                              0013     ;        NONE
                              0013     ;
                              0013     ;--
                              0013
                         00FC 0013           .ENTRY  EXE$RUNDWN,^M<R2,R3,R4,R5,R6,R7>
  50   04 AC   02   00    EF  0015           EXTZV   #0,#2,ACMODE(AP),R0      ; FETCH ACCESS MODE ARGUMENT
                 FFE2'    30  001B           BSBW    EXE$MAXACMODE            ; MAXIMIZE WITH PREVIOUS
                  57  50  D0  001E           MOVL    R0,R7                    ; SAVE IN R7 FOR REFERENCE
          09 24 A4    16  E5  0021           BBCC    #PCB$V_PWRAST,PCB$L_STS(R4),10$ ; SKIP IF NO POWER FAIL AST
            00000000'9F   D4  0026           CLRL    @#CTL$GL_PCWERAST        ; ZAP AST ADDRESS
                  38 A4   B6  002C           INCW    PCB$W_ASTCNT(R4)         ; AND RESTORE AST QUOTA
                              002F     10$:                                   ;
                              002F     ;------------------------------------------------------------
                              002F     ;
                              002F     ;       Enable resource wait mode to ensure that rundown will succeed.
                              002F     ;
                              002F     ;------------------------------------------------------------
                              002F
                              002F           $SETRWM_S WATFLG=#0              ; ENABLE WAIT MODE
                      50  DD  0038           PUSHL   R0                       ; SAVE RETURN STATUS
                              003A
                              003A     ;------------------------------------------------------------
                              003A     ;
                              003A     ;       INVOKE THE USER RUNDOWN SERVICE(S)
                              003A     ;
                              003A     ;       The user service is invoked in KERNEL mode with a JSB and must
                              003A     ;       exit with a RSB.
```

```
                             003A   ;
                             003A   ;       R4 - Pointer to current PCB
                             003A   ;       R7 - Access mode parameter to SYSRUNDWN maximized with previous mode
                             003A   ;       ACMODE(AP) - Access mode parameter to SYSRUNDWN
                             003A   ;
                             003A   ;--------------------------------------------------------------
                             003A
     55  00000000'9F    D0   003A           MOVL    @#CTL$GL_USRUNDWN, R5   ; GET PER-PROCESS USER RUNDOWN VECTOR
                 02     13   0041           BEQL    20$                     ; NOT PRESENT, SKIP ON
                 65     16   0043           JSB     (R5)                    ; CALL THRU THE VECTOR(S)
     55  00000000'GF    D0   0045   20$:    MOVL    G^EXE$GL_USRUNDWN, R5   ; GET SYSTEM-WIDE USER RUNDOWN VECTOR
                 02     13   004C           BEQL    30$                     ; NOT PRESENT, SKIP ON
                 65     16   004E           JSB     (R5)                    ; CALL THRU THE VECTOR(S)
                             0050   30$:                                    ;
                             0050   ;--------------------------------------------------------------
                             0050   ;
                             0050   ;       WRITE IMAGE ACCOUNTING RECORD
                             0050   ;
                             0050   ;--------------------------------------------------------------
 05 00000000'EF  01     E1   0050           BBC     #ACM$V_IMAGE,EXE$GL_ACMFLAGS,40$; IMAGE ACCOUNTING ENABLED ?
                 55     D4   0058           CLRL    R5                              ; NOT A SPECIAL KERNEL AST
              FFA3'     30   005A           BSBW    EXE$IMGDELMSG                   ; WRITE IMAGE DELETION MESSAGE
                             005D   40$:
         00000000'9F    7C   005D           CLRQ    @#CTL$GQ_ISTART                 ; IMAGE ACCOUNTING INACTIVE
                             0063   ;--------------------------------------------------------------
                             0063   ;
                             0063   ;       CLOCK THE IMAGE COUNTER
                             0063   ;
                             0063   ;--------------------------------------------------------------
                             0063
     55  00000000'9F    D0   0063           MOVL    @#CTL$GL_PHD,R5         ; GET ADDRESS OF PROCESS HEADER
            00F4 C5     D6   006A           INCL    PHD$L_IMGCNT(R5)        ; PROVIDE A CHECKING MECHANISM TO
                             006E                                           ; PREVENT DELIVERY OF AST'S TO THE
                             006E                                           ; WRONG OR SUBSEQUENT IMAGES
                             006E   ;--------------------------------------------------------------
                             006E   ;
                             006E   ;       RESET THE DISPATCH VECTORS TO THEIR INITIAL VALUES. (NO VECTORS USED)
                             006E   ;
                             006E   ;--------------------------------------------------------------
                             006E
         0000028D'EF    16   006E           JSB     EXE$RESETVEC            ; RESET DISPATCH VECTORS
00000000'GF  00000000'GF  D0 0074           MOVL    G^MMG$GL_RMSBASE,G^CTL$GL_RMSBASE ;RESET TO DEFAULT RMS
                             007F
                             007F   ;--------------------------------------------------------------
                             007F   ;
                             007F   ;       PAGE FAULT MONITORING RUNDOWN
                             007F   ;
                             007F   ;--------------------------------------------------------------
                             007F
                             007F           $SETPFM_S PFMFLG=#0             ; Terminate page fault monitoring
                             008C
                             008C   ;--------------------------------------------------------------
                             008C   ;
                             008C   ;       SECURITY AUDITING PROCESS RUNDOWN
                             008C   ;
                             008C   ;--------------------------------------------------------------
                             008C
```

```
                  57  D5  008C                TSTL    R7                             ; IS THIS PROCESS RUNDOWN?
                  15  12  008E                BNEQU   DASSIGN1                       ; BR IF NOT
     55  000004B6'9F  DC  0090                MOVL    @#NSA$T_IDT+NSA$L_IDT_AUDIT_CHAN,R5 ; IS JOURNAL ASSIGNED?
                  0C  13  0097                BEQLU   DASSIGNT                       ; BR IF NOT
                          0099                $)EASJNL_S R5                          ; DEASSIGN JOURNAL
                          00A5
                          00A5      ;--------------------------------------------------------------
                          00A5      ;
                          00A5      ;         DEASSIGN CHANNELS WITHOUT OPEN FILES
                          00A5      ;
                          00A5      ;--------------------------------------------------------------
                          00A5      DASSIGN1:                                        ; FIRST DEASSIGN PASS
     55  000C0000'9F  3C  00A5                MOVZWL  @#CTL$GW_CHINDX,R5             ; GET MAXIMUM INDEX
                  26  13  00AC                BEQL    21$                            ; NO CHANNELS ASSIGNED, LEAVE
              55  55  CE  00AE                MNEGL   R5,R5                          ; CONVERT TO NEGATIVE OFFSET
                  08  C1  00B1                ADDL3   #CCB$B_STS,-
     53  00000000'9F          00B3                        @#CTL$GL_CCBBASE,R3            ; COMPUTE ADDRESS OF HIGHEST CHANNEL
                          00B9                ASSUME  CCB$B_STS+1 EQ CCB$B_AMOD ;
       57    01 A345  91  00B9      10$:      CMPB    1(R3)[R5],R7                   ; IS THIS CHANNEL DEASSIGNABLE?
                  05  14  00BE                BGTR    15$                            ; YES, ASSIGNED BY HIGHER ACMODE
                          00C0
                          00C0      ;
                          00C0      ; NOTE THAT THE PRIVILEGE CHECK TO DETERMINE WHETHER THE CHANNEL SHOULD
                          00C0      ; BE DEASSIGNED BY THIS MODE MUST BE A SIGNED COMPARISON.
                          00C0      ; THE F11BXQP 'RESERVES' A CHANNEL FOR ITSELF (NEVER TO BE USED BY ANYTHING
                          00C0      ; ELSE, OR DEASSIGNED) BY STORING A MINUS 1 (-1) IN THE CCB$B_AMOD FIELD.
                          00C0      ; THIS CAUSES A SIGNED TEST AGAINST EVEN KERNEL MODE TO FAIL AS IF THE
                          00C0      ; CHANNEL WERE ASSIGNED BY A HIGHER MODE.
                          00C0      ; THE CHANNEL NEVER NEEDS TO BE DEASSIGNED BECAUSE THERE IS NO SPECIFIC
                          00C0      ; DEVICE ASSOCIATED WITH IT - IT IS FABRICATED BY THE XQP INITIALIZATION
                          00C0      ; CODE WHEN THE PROCESS IS CREATED.
                          00C0      ;
                          00C0
        0A 6345   01  E1  00C0                BBC     #CCB$V_IMGTMP,(R3)[R5],20$ ; BRANCH IF NOT IMAGE TEMPORARY
              7E  55  CE  00C5      15$:      MNEGL   R5,-(SP)                       ; CONVERT TO REAL CHANNEL NUMBER
     00000000'GF  01  FB  00C8                CALLS   #1,G^SYS$DASSGN                ; DE-ASSIGN CHANNEL
              55  10  C0  00CF      20$:      ADDL2   #CCB$C_LENGTH,R5               ; POINT AT NEXT CHANNEL
              E5  19      00D2                BLSS    10$                            ; NEXT CHANNEL
                          00D4
                          00D4      ;--------------------------------------------------------------
                          00D4      ;
                          00D4      ;         Deallocate the RDI table and zero CTL$GL_RDIPTR
                          00D4      ;
                          00D4      ;--------------------------------------------------------------
                          00D4
     50  00000000'9F  D0  00D4      21$:      MOVL    @#CTL$GL_RDIPTR,R0             ; GET RDI POINTER
                  0F  13  00DB                BEQLU   22$                            ; BR IF NOT ALLOCATED
              51  60  D0  00DD                MOVL    RDI$L_SIZE(R0),R1              ; GET SIZE OF ALLOCATED BLOCK
         00000000'9F  D4  00E0                CLRL    @#CTL$GL_RDIPTR                ; ZERO RDI POINTER
         00000000'GF  16  00E6                JSB     G^EXE$DEAP1                    ; DEALLOCATE RDI BLOCK
                          00EC      22$:
                          00EC
                          00EC      ;--------------------------------------------------------------
                          00EC      ;
                          00EC      ;         RELEASE MEMORY
                          00EC      ;
                          00EC      ;--------------------------------------------------------------
```

```
                             00EC
            FF11'    30      00EC           BSBW    MMG$IMGRESET            ; RELEASE IMAGE PAGES
                             00EF
                             00EF      ;--------------------------------------------------------------
                             00EF      ;
                             00EF      ;        DEASSIGN CHANNELS - ALL
                             00EF      ;
                             00EF      ;--------------------------------------------------------------
                             00EF
55    00000000'9F    3C      00EF           MOVZWL  @#CTL$GW_CHINDX,R5      ; GET MAXIMUM INDEX
                30   13      00F6           BEQL    40$                     ; NO CHANNELS ASSIGNED, LEAVE
           55   55   CE      00F8           MNEGL   R5,R5                   ; CONVERT TO NEGATIVE OFFSET
                09   C1      00FB           ADDL3   #CCB$B_AMOD,-
53    00000000'9F            00FD                   @#CTL$GL_CCBBASE,R3     ; COMPUTE ADDRESS OF HIGHEST CHANNEL
         57   6345   91      0103  25$:     CMPB    (R3)[R5],R7             ; IS THIS CHANNEL DEASSIGNABLE?
                1A   15      0107           BLEQ    30$                     ; NO, ASSIGNED BY LOWER ACMODE
                             0109
                             0109      ;
                             0109      ; NOTE THAT THE PRIVILEGE CHECK TO DETERMINE WHETHER THE CHANNEL SHOULD
                             0109      ; BE DEASSIGNED BY THIS MODE MUST BE A SIGNED COMPARISON.
                             0109      ; THE F11BXQP 'RESERVES' A CHANNEL FOR ITSELF (NEVER TO BE USED BY ANYTHING
                             0109      ; ELSE, OR DEASSIGNED) BY STORING A MINUS 1 (-1) IN THE CCB$B_AMOD FIELD.
                             0109      ; THIS CAUSES A SIGNED TEST AGAINST EVEN KERNEL MODE TO FAIL AS IF THE
                             0109      ; CHANNEL WERE ASSIGNED BY A HIGHER MODE.
                             0109      ; THE CHANNEL NEVER NEEDS TO BE DEASSIGNED BECAUSE THERE IS NO SPECIFIC
                             0109      ; DEVICE ASSOCIATED WITH IT - IT IS FABRICATED BY THE XQP INITIALIZATION
                             0109      ; CODE WHEN THE PROCESS IS CREATED.
                             0109      ;
                             0109
           7E   55   CE      0109           MNEGL   R5,-(SP)                ; CONVERT TO REAL CHANNEL NUMBER
00000000'GF     01   FB      010C           CALLS   #1,G^SYS$DASSGN         ; DE-ASSIGN CHANNEL
             0D 50   E8      0113           BLBS    R0,30$                  ; BRANCH ON SUCCESS
0000026C 8F     50   D1      0116           CMPL    R0,#SS$_IVCHNLSEC       ; CHECK FOR SECTION ON CHANNEL
                04   13      011D           BEQL    30$                     ; WHICH IS OK
                             011F           BUG_CHECK FILCNTNONZ,FATAL      ; IT REALLY SHOULD HAVE WORKED
                             0123
           55   10   C0      0123  30$:     ADDL    #CCB$C_LENGTH,R5        ; POINT AT NEXT CHANNEL
                DB   19      0126           BLSS    25$                     ; NEXT CHANNEL
                             0128
                             0128      ;--------------------------------------------------------------
                             0128      ;
                             0128      ;        DEALLOCATE ALLOCATED DEVICES
                             0128      ;
                             0128      ;------- -------------------------------------------------------
                             0128
                             0128  40$:     $DALLOC_S       ACMODE=R7       ; DE-ALLOCATE AT ACCESS MODE
                             0133
                             0133      ;--------------------------------------------------------------
                             0133      ;
                             0133      ;        CANCEL TIMER AND SCHEDULED WAKEUP REQUESTS
                             0133      ;
                             0133      ;------- ------------------------------------------------------
                             0133
                             0133           $CANTIM_S       ACMODE=R7       ; CANCEL TIMER REQUESTS
                             013E           $CANWAK_S                       ; CANCEL WAKE UP REQUESTS
                             0149
                             0149      ;--------------------------------------------------------------
```

```
                               0149  ;
                               0149  ;        DEQUEUE REMAINING LOCKS
                               0149  ;
                               0149  ;----------------------------------------------------------
                               0149
                               0149           $DEQ_S          ACMODE=R7,-              ; DEQUEUE ALL LOCKS AT SPECIFIED
                               0149                           FLAGS=#LCK$M_DEQALL!LCK$M_INVVALBLK
                               0158                                                    ; ACCESS MODE AND INVALIDATE
                               0158                                                    ; VALUE BLOCKS
                               0158
                               0158  ;----------------------------------------------------------
                               0158  ;
                               0158  ;        DISASSOCIATE COMMON EVENT BLOCKS
                               0158  ;
                               0158  ;----------------------------------------------------------
                               0158
                               0158           $DACEFC_S       EFN=#64             ; DISASSOCIATE GROUP #2
                               0165           $DACEFC_S       EFN=#96             ; DISASSOCIATE GROUP #3
                               0172
                               0172  ;----------------------------------------------------------
                               0172  ;
                               0172  ;        CLEAR THE IPAST VECTOR AND ADDRESS
                               0172  ;
                               0172  ;----------------------------------------------------------
                               0172
          51    0110 C4    D0  0172           MOVL    PCB$L_IPAST(R4),R1       ; Pick up the vector
                     24    13  0177           BEQL    70$                      ; There are none
                52   07    D0  0179           MOVL    #7,R2                    ; Set up for 8 entries
          50    52   02    78  017C  50$:     ASHL    #2,R2,R0                 ; Each entry is 4 bits
    53    51    04   50    EF  0180           EXTZV   R0,#4,R1,R3              ; Pick up the entry (mode+1)
                     13    13  0185           BEQL    60$                      ; None there
                57   53    D1  0187           CMPL    R3,R7                    ; At a more priv mode than ACMODE?
                     0E    15  018A           BLEQ    60$                      ; Yes, do not clear
 0110 C4    04  50   00    F0  018C           INSV    #0,R0,#4,PCB$L_IPAST(R4); No, clear it out
       00000000'9F42       D4  0193           CLRL    @#CTL$AL_IPASTVEC[R2]    ;  and its associated address
                DF   52    F4  019A  60$:     SOBGEQ  R2,50$                   ; Loop until all done
                               019D  70$.
                               019D
                               019D  ;----------------------------------------------------------
                               019D  ;
                               019D  ;        PURGE PENDING UNDELIVERED AST CONTROL BLOCKS
                               019D  ;
                               019D  ;----------------------------------------------------------
                               019D
                               019D  ASTRUNDWN:                                         ;
           56      10 A4   DE  019D           MOVAL   PCB$L_ASTQFL(R4),R6      ; COMPUTE ADDRESS OF HEADER
                               01A1  LOCK_BEGIN:
                               01A1           SETIPL  W^LOCK_IPL               ; BLOCK AST ARRIVAL & LOCK DOWN CODE
   6u A4      00000004'GF  D1  01A6           CMPL    G^EXE$GQ_ERLMBX+4,PCB$L_PID(R4) ; CHECK FOR ERROR LOG MAILBOX
                     06    12  01AE           BNEQ    10$                      ; BR IF NO
          00000000'GF      7C  01B0           CLRQ    G^EXE$GQ_ERLMBX          ; YES, DEASSIGN IT
           50      14 A4   D0  01B6  10$:     MOVL    PCB$L_ASTQBL(R4),R0      ; GET TAIL OF AST QUEUE
                56   50    D1  01BA           CMPL    R0,R6                    ; CHECK FOR EMPTY QUEUE
                     39    13  01BD           BEQL    20$                      ; YES, DONE WITH ASTS
  57    0B A0   02   00    ED  01BF           CMPZV   #ACB$V_MODE,#ACB$S_MODE,ACB$B_RMOD(R0),R7 ; CHECK ACCESS MODE OF ACB
                     31    19  01C5           BLSS    20$                      ; REACHED THE END OF DELETABLE ASTS
                50   60    0F  01C7           REMQUE  (R0),R0                  ; REMOVE IT FROM AST QUEUE
```

```
            2C   1D  01CA   439          BVS     20$                      ; EXIT IF QUEUE EMPTY
   03 0B A0  06   E1  01CC   440          BBC     #ACB$V_QUOTA,ACB$B_RMOD(R0),15$ ; SKIP IF NO QUOTA ACCOUNTING
         38 A4   B6  01D1   441          INCW    PCB$W_ASTCNT(R4)         ; ALLOW ANOTHER AST
      0B A0  30   93  01D4   442 15$:     BITB    #<ACB$M_NODELETE!ACB$M_PKAST>,ACB$B_RMOD(R0)  ; SPECIAL ACTIONS?
            08   12  01D8   443          BNEQ    18$                      ; YES
    00000000'GF   16  01DA   444          JSB     G^EXE$DEANONPAGED        ; NO, DEALLOCATE IT
            D4   11  01E0   445          BRB     10$                      ; CONTINUE
                     01E2   446
   CF 0B A0  04   E1  01E2   447 18$:     BBC     #ACB$V_PKAST,ACB$B_RMOD(R0),10$ ; BR IF NO PIGGYBACK AST
         55  50   D0  01E7   448          MOVL    R0,R5                    ; PUT ACB ADDRESS IN R5
                     01EA   449 ;
                     01EA   450 ; CALL PIGGY-BACK SPECIAL KERNEL AST ROUTINE.
                     01EA   451 ;        R5 - ACB ADDRESS (MUST BE PRESERVED)
                     01EA   452 ;        IPL = IPL$_ASTDEL (MUST NOT BE LOWERED)
                     01EA   453 ;
                     01EA   454          SETIPL  #IPL$_ASTDEL             ; LOWER IPL TO IPL$_ASTDEL
         5E  04   C2  01ED   455          SUBL    #4,SP                    ; EXTRA LONGWORD FOR INTER-PROCESS ASTS
         18 B5   16  01F0   456          JSB     @ACB$L_KAST(R5)          ; CALL KAST ROUTINE
         5E  04   C0  01F3   457          ADDL    #4,SP                    ; REMOVE EXTRA LONGWORD
            A9   11  01F6   458          BRB     LOCK_BEGIN               ; NO DELETE FOR PKAST
                     01F8   459
                     01F8   460 ;---------------------------------------------------------------
                     01F8   461 ;
                     01F8   462 ;        RESET AST ACTIVE AND AST ENABLE BITS
                     01F8   463 ;
                     01F8   464 ;---------------------------------------------------------------
                     01F8   465
         55  57   D0  01F8   466 20$:     MOVL    R7,R5                    ; INITIALIZE MODE INDEX
            13   13  01FB   467          BEQL    40$                      ; SKIP TERMINATION HANDLER FOR KERNEL
                     01FD   468 30$:
         55  02   D1  01FD   469          CMPL    #2,R5                    ; SUPERVISOR OR USER MODE?
            07   18  0200   470          BGEQ    35$                      ; BRANCH IF NOT
  FFFFFFF8'9F45   D4  0202   471          CLRL    @#CTL$GL_CMSUPR-8[R5]    ; CLEAR CHANGE MODE HANDLER
  FFFFFFFC'9F45   D4  0209   472 35$:     CLRL    @#CTL$GL_THEXEC-4[R5]    ; CLEAR TERMINATION HANDLER
  00000000'9F45   7C  0210   473 40$:     CLRQ    @#CTL$AQ_EXCVEC[R5]      ; CLEAR EXCEPTION HANDLER ENTRIES
  00000000'9F45   D4  0217   474          CLRL    @#CTL$AL_FINALEXC[R5]    ; CLEAR LAST CHANCE EXCEPTION HANDLER
   00 0D A4  55   E2  021E   475          BBSS    R5,PCB$B_ASTEN(R4),50$   ; SET ENABLE BIT
   00 0C A4  55   E5  0223   476 50$:     BBCC    R5,PCB$B_ASTACT(R4),60$  ; CLEAR AST ACTIVE
     50  55  06   C1  0228   477 60$:     ADDL3   #PCB$V_SSFEXC,R5,R0      ; COMPUTE SSFAIL ENABLE BIT NUMBER
   00 24 A4  50   E5  022C   478          BBCC    R0,PCB$L_STS(R4),70$     ; AND CLEAR IT
      C8 55  04   F2  0231   479 70$:     AOBLSS  #4,R5,30$                ; DO ALL REQUESTED MODES
    00000000'9F   D4  0235   480          CLRL    @#CTL$GL_CMHANDLR        ; CLEAR COMPATIBILITY MODE HANDLER
    00000000'GF   16  023B   481          JSB     G^SCH$NEWLVL             ; COMPUTE NEW ASTLVL
    00001004 8F   CA  0241   482          BICL    #<1@PCB$V_FORCPEN>!<1@PCB$V_WAKEPEN>,- ; CLEAR FORCE EXIT AND
         24 A4       0247   483                  PCB$L_STS(R4)            ; WAKE PENDING
                     0249   484          SETIPL  #0                       ; ENABLE AGAIN
                     024C   485 ;---------------------------------------------------------------
                     024C   486 ;
                     024C   487 ;        DELETE IMAGE LOGICAL NAMES
                     024C   488 ;
                     024C   489 ;---------------------------------------------------------------
                     024C   490
                     024C   491 LOGNRUNDWN:                               ; LOGICAL NAME RUNDOWN
         52  57   D0  024C   492          MOVL    R7,R2                    ; ACCESS MODE ARG TO RIGHT REGISTER
 53 00000000'9F   D0  024F   493          MOVL    @#CTL$GL_LNMHASH,R3      ; ADDRESS OF PROCESS HASH TABLE
            06   13  0256   494          BEQL    5$                       ; NEVER ALLOCATED SPACE
    00000000'GF   16  0258   495          JSB     G^LNM$DELETE_HASH        ; DELETE ALL NAMES
```

```
                                     025E      5$:
                                     025E      ;-----------------------------------------------------------------
                                     025E      ;
                                     025E      ;        Reset P0 extention to Process Allocation Region
                                     025E      ;
                                     025E      ;-----------------------------------------------------------------
                                     025E
             00000000'GF       7C    025E               CLRQ    G^CTL$GQ_P0ALLOC          ; RESET LIST HEAD TO NULL
         50  00000000'GF       3C    0264               MOVZWL  G^SGN$GW_CTLIMGLIM,R0     ; GET IMAGE LIMIT ON P0 REQUESTS
00000000'GF       50     09    78    026B               ASHL    #9,R0,G^CTL$GL_PRCALLCNT;     AND RESET CELL CONTENTS.
                                     0273
                                     0273      ;-----------------------------------------------------------------
                                     0273      ;
                                     0273      ;        Restore previous setting of resource wait mode
                                     0273      ;
                                     0273      ;-----------------------------------------------------------------
                                     0273
                         50    D4    0273               CLRL    R0                        ; ASSUME ON
                  09     8E    D1    0275               CMPL    (SP)+,#SS$_WASSET         ; CHECK IF IT WAS OFF
                         02    12    0278               BNEQ    10$                       ; BRANCH IF ON
                         50    D6    027A               INCL    R0                        ; SET TO TURN OFF
                                     027C      10$:     $SETRWM_S WATFLG=R0
                                     0285
                  50     01    3C    0285               MOVZWL  #SS$_NORMAL,R0            ; SET NORMAL COMPLETION STATUS
                               04    0288               RET                               ; RETURN
                                     0289
                                     0289      LOCK_IPL:                                  ; END OF LOCKED DOWN CODE
                       00000008      0289               .LONG   IPL$_SYNCH
                                     028D      LOCK_END:
                                     028D               ASSUME  LOCK_END-LOCK_BEGIN LE 512      ; MUST BE ON ADJOINING PAGES
```

```
SYS
Sym

ACB
AST
BUI
EFN
EXE
EXE
EXE
EXE
EXE
EXE
EXE
IPL
IPL
IPL
JIB
LOG
PCB
PCB
PCB
PCB
PCB
PCB
PID
PR$
PSL
PSL
REQ
RSN
SCH
SCH
SCH
SCH
SCH
SS$
SS$
SS$
SS$
TMD
TQE
TQE
TQE
TQE
TQE
TQE
TQE
TQE
TQE
TQE
TQE
TQE
WKD
WKR
```

```
                          028D            .SBTTL  EXE$RESETVEC - REST PROVILEGED LIBRARY VECTORS
                          028D
                          028D   ;++
                          028D   ; FUNCTIONAL DESCRIPTION:
                          028D   ;        THIS ROUTINE RESETS THE KERNEL AND EXEC CHANGE MODE DISPATCH VECTORS
                          028D   ;        ALONG WITH THE RUNDOWN VECTORS.
                          028D   ;
                          028D   ; CALLING SEQUENCE:
                          028D   ;        JSB EXE$RESETVEC
                          028D   ;
                          028D   ;        R0, R1, R2, R3, AND R6 ARE DESTROYED
                          028D   ;
                          028D   ;
                          028D   ;--
                          028D
                          028D   EXE$RESETVEC::
 56   00000000'9F    9E   028D            MOVAB   @#CTL$A_DISPVEC,R6       ;GET ADR OF 1ST VECTOR PAGE
                          0294   ; VERIFY THAT EACH SET OF VECTORS USES ONE HALF PAGE
                          0294
                          0294            ASSUME  <NXTEVEC-NXTKVEC> EQ 256
                          0294            ASSUME  <NXTRVEC-NXTEVEC> EQ 256
                          0294            ASSUME  <NXTMVEC-NXTRVEC> EQ 256
                          0294
        52   04      9A   0294            MOVZBL  #4,R2                     ; THERE ARE FOUR VECTORS TO RESET
 51   00000000'9F    3E   0297            MOVAW   @#IAC$AW_VECRESET,R1      ; R1 LOCATES RESET CONTEXT
 53   00000000'9F    3E   029E            MOVAW   @#IAC$AW_VECSET,R3        ; R3 LOCATES THE STARTING POINT
                          02A5
        50   61      3C   02A5   50$:     MOVZWL  (R1),R0                   ; GET OFFSET INTO VECTOR
        83   81      B0   02A8            MOVW    (R1)+,(R3)+               ; RESET STARTING POINT
        66   50      D0   02AB            MOVL    R0,(R6)                   ; STORE OFFSET INTO FIRST LONGWORD
        50   56      C0   02AE            ADDL2   R6,R0                     ; LOCATE ADDRESS TO BE RESET
        60   05      9A   02B1            MOVZBL  #OP$_RSB,(R0)             ; STORE "RSB" AT APPROPRIATE OFFSET
     56   0100 C6    DE   02B4            MOVAL   256(R6),R6                ; ADVANCE R6 TO NEXT VECTOR
           E9 52     F5   02B9            SOBGTR  R2,50$                    ;  AND LOOP IF NOT YET DONE
                     05   02BC            RSB
                          02BD
                          02BD            .END
```

```
$$11                       = 00000000                   MMG$GL_RMSBASE              ********   X   02
ACB$B_RMOD                 = 0000000B                   MMG$IMGRESET                ********   X   02
ACB$L_KAST                 = 00000018                   NSA$L_IDT_AUDIT_CHAN      = 000004B6
ACB$M_NODELETE             = 00000020                   NSA$T_IDT                   ********   X   02
ACB$M_PKAST                = 00000010                   NXTEVEC                   = 00000100
ACB$S_MODE                 = 00000002                   NXTKVEC                   = 00000000
ACB$V_MODE                 = 00000000                   NXTMVEC                   = 00000300
ACB$V_PKAST                = 00000004                   NXTRVEC                   = 00000200
ACB$V_QUOTA                = 00000006                   OP$_RSB                   = 00000005
ACM$V_IMAGE                = 00000001                   PCB$B_ASTACT              = 0000000C
ACMODE                     = 00000004                   PCB$B_ASTEN               = 0000000D
ASTRUNDWN                    0000019D R      02         PCB$L_ASTQBL              = 00000014
BUG$_FILCNTNONZ              ********   X    02         PCB$L_ASTQFL              = 00000010
CCB$B_AMOD                 = 00000009                   PCB$L_IPAST               = 00000110
CCB$B_STS                  = 00000008                   PCB$L_PID                 = 00000060
CCB$C_LENGTH               = 00000010                   PCB$L_STS                 = 00000024
CCB$V_IMGTMP               = 00000001                   PCB$V_FORCPEN             = 00000002
CJF$DEASJNL                  ********  GX    02         PCB$V_PWRAST              = 00000016
CTL$AL_FINALEXC              ********   X    02         PCB$V_SSFEXC              = 00000006
CTL$AL_IPASTVEC              ********   X    02         PCB$V_WAKEPEN             = 0000000C
CTL$AQ_EXCVEC                ********   X    02         PCB$W_ASTCNT              = 00000038
CTL$A_DISPVEC                ********   X    02         PHD$L_IMGCNT              = 000000F4
CTL$GL_CCBBASE               ********   X    02         PR$_IPL                   = 00000012
CTL$GL_CMHANDLR              ********   X    02         PROC_TABLE                  00000000 R     02
CTL$GL_CMSUPR                ********   X    02         RDI$C_SIZE                = 00000000
CTL$GL_LNMHASH               ********   X    02         SCH$NEWLVL                  ********   X   02
CTL$GL_PHD                   ********   X    02         SGN$GW_CTLIMGLIM            ********   X   02
CTL$GL_POWERAST              ********   X    02         SS$_IVCHNLSEC             = 0000026C
CTL$GL_PRCALLCNT             ********   X    02         SS$_NORMAL                = 00000001
CTL$GL_RDIPTR                ********   X    02         SS$_WASSET                = 00000009
CTL$GL_RMSBASE               ********   X    02         SYS$CANTIM                  ********  GX   02
CTL$GL_THEXEC                ********   X    02         SYS$CANWAK                  ********  GX   02
CTL$GL_USRUNDWN              ********   X    02         SYS$DACEFC                  ********  GX   02
CTL$GQ_ISTART                ********   X    02         SYS$DALLOC                  ********  GX   02
CTL$GQ_POALLOC               ********   X    02         SYS$DASSGN                  ********   X   02
CTL$GW_CHINDX                ********   X    02         SYS$DEQ                     ********  GX   02
DASSIGN1                     000000A5 R      02         SYS$SETPFM                  ********  GX   02
EXE$DEANONPAGED              ********   X    02         SYS$SETRWM                  ********  GX   02
EXE$DEAP1                    ********   X    02
EXE$GL_ACMFLAGS              ********   X    02
EXE$GL_USRUNDWN              ********   X    02
EXE$GQ_ERLMBX                ********   X    02
EXE$IMGDELMSG                ********   X    02
EXE$MAXACMODE                ********   X    02
EXE$RESETVEC                 0000028D RG     02
EXE$RUNDWN                   00000013 RG     02
IAC$AW_VECRESET              ********   X    02
IAC$AW_VECSET                ********   X    02
IPL$_ASTDEL                = 00000002
IPL$_SYNCH                 = 00000008
LCK$M_DEQALL               = 00000001
LCK$M_INVVALBLK            = 00000004
LNM$DELETE_HASH              ********   X    02
LOCK_BEGIN                   000001A1 R      02
LOCK_END                     0000028D R      02
LOCK_IPL                     00000289 R      02
LOGNRUNDWN                   0000024C R      02
```

```
                                          +----------------+
                                          ! 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
YEXEPAGED                 000002BD  (   701.)  02 (  2.)  NOPIC    USR    CON    REL    LCL NOSHR   EXE   RD     WRT NOVEC BYTE

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

Phase                     Page faults     CPU Time        Elapsed Time
-----                     -----------     --------        ------------
Initialization                     31     00:00:00.08     00:00:00.27
Command processing                113     00:00:00.54     00:00:01.70
Pass 1                            371     00:00:12.04     00:00:24.98
Symbol table sort                   0     00:00:01.97     00:00:04.28
Pass 2                            117     00:00:02.54     00:00:05.51
Symbol table output                11     00:00:00.09     00:00:00.24
Psect synopsis output               2     00:00:00.02     00:00:00.08
Cross-reference output              0     00:00:00.00     00:00:00.00
Assembler run totals              647     00:00:17.29     00:00:37.07

The working set limit was 1650 pages.
71031 bytes (139 pages) of virtual memory were used to buffer the intermediate code.
There were 70 pages of symbol table space allocated to hold 1326 non-local and 28 local symbols.
563 source lines were read in Pass 1, producing 19 object records in Pass 2.
32 pages of virtual memory were used to define 31 macros.

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

Macro library name                            Macros defined
------------------                            --------------
_$255$DUA28:[SYS.OBJ]LIB.MLB;1                          10
_$255$DUA28:[SYSLIB]STARLET.MLB;2                       18
TOTALS (all libraries)                                  28

1460 GETS were required to define 28 macros.

There were no errors, warnings or information messages.

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

0387 AH-BT13A-SE
VAX/VMS V4.0

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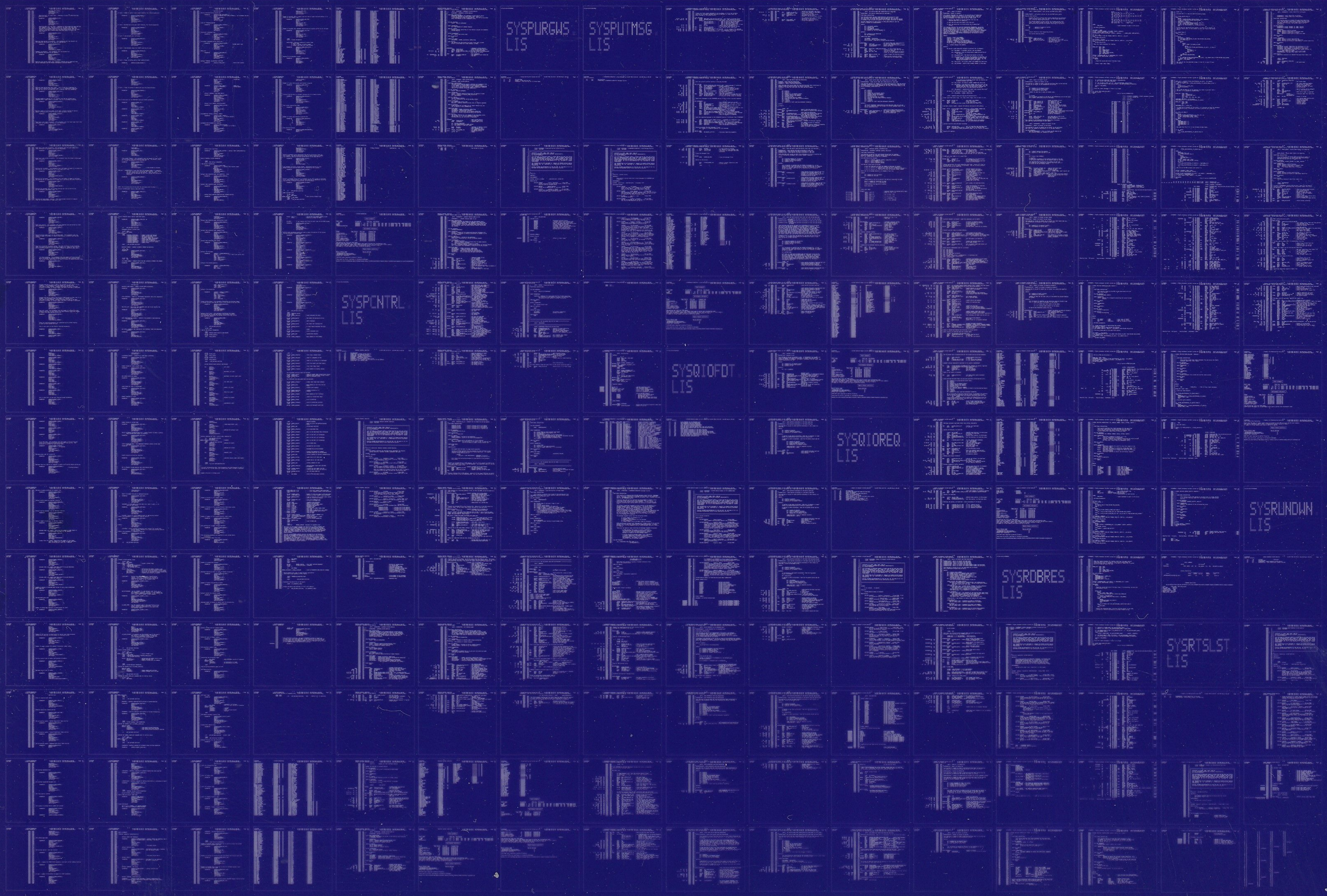

0388 AH-BT13A-SE
VAX/VMS V4.0

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SYSSETPRA
LIS

SYSSETSSF
LIS

SYSSNDJBC
LIS

SYSSETIME
LIS

SYSSETPFM
LIS

SYSUPDSEC
LIS

SYSSNDMSG
LIS

SYSSETPRT
LIS

SYSSETPRV
LIS

SYSUNWIND
LIS

SYSSETSTK
LIS

SYSSETMOD
LIS

SYSSETEXV
LIS

SYSSETPRI
LIS

SYSSCHEVT
LIS