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```
                                        .TITLE  TSDEFS -- Table definitions
                                        .ENABL  LC
                                        .ENABL  AMA
000000                                  .CSECT  TSDEFS
                                        .GLOBL  TSDEFS
000000                          TSDEFS:
                                ;
                                ;   TSDEFS is the module of TSX-Plus that contains the template definitions
                                ;   for various tables and flags used by TSX-Plus.
                                ;
                                ;   Copyright (c) 1980,1981,1982,1983,1984,1985.
                                ;   S&H Computer Systems, Inc.   Nashville, Tn
                                ;
                                ;-----------------------------------------------------------------------
                                ;   Macro definitions
                                ;
                                ;   Macro to define the start of a template.
                                ;
                                        .MACRO  RZ
                                $AC     =       0
                                        .ENDM   RZ
                                ;
                                ;   Macro to define a symbol and reserve the specified number of words.
                                ;
                                        .MACRO  RW      NAME,SIZE
                                        .DSABL  CRF
                                        .GLOBL  NAME
                                        .IF     NE,<$AC&1>
                                $AC     =       $AC+1
                                        .ENDC
                                        .ENABL  CRF
                                        .LIST
                                                                                      NAME=$AC
                                        .NLIST
                                        .DSABL  CRF
                                $AC     =       $AC+<2*<SIZE>>
                                        .ENABL  CRF
                                        .ENDM   RW
                                ;
                                ;   Macro to define a symbol and reserve the specified number of bytes.
                                ;
                                        .MACRO  RB      NAME,SIZE
                                        .DSABL  CRF
                                        .GLOBL  NAME
                                        .ENABL  CRF
                                        .LIST
                                                                                      NAME=$AC
                                        .NLIST
                                        .DSABL  CRF
                                $AC     =       $AC+<SIZE>
                                        .ENABL  CRF
                                        .ENDM   RB
                                ;
                                ;   Macro to define a symbol equated to a constant value.
                                ;
                                        .MACRO  M       NAME,VALUE
                                        .DSABL  CRF
```

```
                        .GLOBL  NAME
                        .ENABL  CRF
                NAME    =       VALUE
                        .ENDM   M
```

```
                                               .SBTTL  Status flags in LSW tables
                                       ;--------------------------------------------------------------------------------
                                       ;  Status flags in LSW table.
                                       ;
  000000                               M       $DILUP  100000  ;Line is logged on
  000000                               M       $KINIT  40000   ;KMON initialization completed
  000000                               M       $INCOR  20000   ;Job is in memory now
  000000                               M       $NDMEM  10000   ;Job waiting for memory expansion
  000000                               M       $DOOFF  4000    ;In the process of logging off
  000000                               M       $INIT   2000    ;Line has been initialized
  000000                               M       $DISCN  1000    ;Line disconnect has occured
  000000                               M       $SUSPN  40      ;Job has been suspended by another job
  000000                               M       $VNOTT  20      ;Virtual line not connected to a terminal
  000000                               M       $DETCH  10      ;Job is detached
  000000                               M       $1ESC   4       ;One Escape received
  000000                               M       $FPUEX  2       ;FPU expection interrupt occurred for job
  000000                               M       $CTRLC  1       ;Ctrl-C received.  Abort task.
  000000                               M       $SPLJB  $VNOTT!$DETCH ;Low-priority job
```

```
                                 ;-----------------------------------------------------------------
                                 ;  Status flags in LSW2 table.
                                 ;
000000                           M      $SCOPE  100000  ;CRT type terminal
000000                           M      $ECHO   40000   ;Echoplex mode
000000                           M      $TAPE   20000   ;Terminal is in "paper-tape" mode (x-on/x-off control)
000000                           M      $8BIT   10000   ;8-bit character support
000000                           M      $START  4000    ;Auto start line during initialization
000000                           M      $TAB    1000    ;Do not simulate tabs for terminal
000000                           M      $FORM   400     ;Do not simulate form feeds for terminal
000000                           M      $AUTO   200     ;Autobaud speed
000000                           M      $PAGE   100     ;Enable ctrl-S/ctrl-Q processing
000000                           M      $LC     40      ;Allow lower case character input
000000                           M      $NOVLN  20      ;Disable virtual line switching
000000                           M      $DEFER  10      ;Deferred type character echoing
000000                           M      $QTSET  4       ;Set TT quiet
000000                           M      $SYSPS  2       ;Require system password before logon
000000                           M      $PHONE  1       ;Dial-up phone line
                                 ;
                                 ;  Combinations of LSW2 flags based on terminal types.
                                 ;
                                 ;  Flags for LA36.
000000                           M      LA36FL  0
000000                           M      LA36NO  $SCOPE!$TAB!$FORM
                                 ;  Flags for LA120.
000000                           M      LA12FL  $PAGE!$TAB!$FORM
000000                           M      LA12NO  $SCOPE
                                 ;  Flags for VT52.
000000                           M      VT52FL  $SCOPE!$TAB!$PAGE
000000                           M      VT52NO  $FORM
                                 ;  Flags for VT100
000000                           M      VT10FL  $SCOPE!$TAB!$PAGE
000000                           M      VT10NO  $FORM
                                 ;  Flags for VT200
000000                           M      VT20FL  $SCOPE!$TAB!$PAGE!$8BIT
000000                           M      VT20NO  $FORM
                                 ;  Flags for Diablo.
000000                           M      DIABFL  $FORM!$PAGE
000000                           M      DIABNO  $SCOPE!$TAB
                                 ;  Flags for Qume.
000000                           M      QUMEFL  $FORM!$PAGE
000000                           M      QUMENO  $SCOPE!$TAB
                                 ;  Flags for ADM3A.
000000                           M      ADM3FL  $SCOPE
000000                           M      ADM3NO  $TAB!$FORM
                                 ;  Flags for Hazeltine terminals
000000                           M      HAZLFL  $SCOPE
000000                           M      HAZLNO  $TAB!$FORM
```

```
                                   ;-----------------------------------------------------------------------------
                                   ;  Status flags in LSW3 table.
                                   ;
  000000                           M       $NOIN   100000  ;Ignore input from line
  000000                           M       $CARUP  40000   ;Carrier is detected for dial-up line
  000000                           M       $HARD   20000   ;Line is a real (hardware connected) line
  000000                           M       $DEAD   10000   ;Device is not installed
  000000                           M       $TRNSP  4000    ;Output is in transparent mode
  000000                           M       $XCHAR  2000    ;Character transmission is in progress
  000000                           M       $CTRLO  1000    ;Ctrl-O received.  Discard TT output.
  000000                           M       $RBOUT  400     ;Rubout sequence in progress
  000000                           M       $NOOUT  200     ;Temporarily suppress TT output
  000000                           M       $1STCH  100     ;Some input characters have been received since CR
  000000                           M       $CTRLW  40      ;Ctrl-W pending
  000000                           M       $CTRLS  20      ;Ctrl-S TT output suspension in effect
  000000                           M       $DODFR  10      ;We are now deferring char echoing
  000000                           M       $GCECO  4       ;GETCHR must echo characters
  000000                           M       $GCESC  2       ;GETCHR: next char part of VT50 esc sequence
  000000                           M       $TRCHR  1       ;Send next char in transparency mode
                                   ;
  000000                           M       KL3CLR  $TRNSP!$CTRLO!$TRCHR
```

```
                                    ;-------------------------------------------------------------------------
                                    ;  Status flags in LSW4 table.
                                    ;
000000                              M       $RFRSH  100000  ;Currently doing window refresh
000000                              M       $CFCCL  40000   ;Command file is expanded CCL command
000000                              M       $QUIET  20000   ;Don't list command file
000000                              M       $INKMN  10000   ;KMON is running
000000                              M       $UCTLC  4000    ;Ctrl-C is user defined activation character
000000                              M       $SETCC  2000    ;Need to tell user about 2 ctrl-C's
000000                              M       $ODTMD  1000    ;ODT character activation mode
000000                              M       $CFOPN  400     ;Command file channel is open
000000                              M       $CFALL  200     ;Get all TT characters from command file
000000                              M       $GTLIN  100     ;.GTLIN is being executed
000000                              M       $CFDCC  40      ;Ctrl-C deferred till terminating .GTLIN
000000                              M       $FORMO  20      ;Do form-feed on TT write of block 0
000000                              M       $TTERR  10      ;Error occured on TT input
000000                              M       $CFSOT  4       ;Suppress program output
000000                              M       $HITTY  2       ;High efficienty TT mode
000000                              M       $FLAGC  1       ;User has been told no TT chars available
                                    ;
000000                              M       KL4CLR  $UCTLC!$SETCC!$ODTMD!$GTLIN!$HITTY!$TTERR
000000                              M       CFLFL4  $QUIET!$CFALL!$CFSOT ;Command file flags that are pushed & popped
```

```
                                  ;----------------------------------------------------------------------
                                  ;  Status flags in LSW5 table.
                                  ;
000000                            M       $CCLRN  100000  ;CCL Translator is running
000000                            M       $TECO   40000   ;TECO is the default editor
000000                            M       $WILD   20000   ;Use implicit wildcards
000000                            M       $PRGLK  10000   ;Program is locked to line
000000                            M       $SCCA   4000    ;Suppress Control-C abort
000000                            M       $1CTLC  2000    ;One Ctrl-C char received
000000                            M       $CLTST  1000    ;Display CCL generated commands
000000                            M       $OITIM  400     ;Output character interrupt timer
000000                            M       $IITIM  200     ;Input character interrupt timer
000000                            M       $VTESC  100     ;Activate on VT50 esc-letter sequence
000000                            M       $CHACT  40      ;Enable single-character activation
000000                            M       $NOWTT  20      ;Allow non-wait TT input (.TTINR)
000000                            M       $KED    10      ;KED or K52 is default system editor
000000                            M       $INDDF  4       ;Execute IND by default for @ files
000000                            M       $INDRN  2       ;IND program is currently executing
000000                            M       $CARMN  1       ;Monitor carrier and log off if carrier lost
                                  ;
                                  ;  LSW5 flags that are inherited by subprocesses:
                                  ;
000000                            M       ISPF5   $TECO!$WILD!$KED!$INDDF
```

```
                               ;-----------------------------------------------------------------------
                               ;  Status flags in LSW6 table.
                               ;
  000000                       M       $SNWTT  100000  ;SET TT NOWAIT done
  000000                       M       $1STLG  40000   ;First Logon on line has occured
  000000                       M       $IOMAP  20000   ;Map user par7 to I/O page
  000000                       M       $XSTOP  10000   ;We have sent X-off to stop transmission to us
  000000                       M       $MLOCK  4000    ;Job is currently locked in memory
  000000                       M       $NLOCK  2000    ;Job is waiting to be locked in low memory
  000000                       M       $CFABT  1000    ;Abort all open command files (double ctrl-c typed)
  000000                       M       $DBGMD  400     ;Debugger is in control of terminal
  000000                       M       $NOLF   200     ;Suppress auto echo of lf following cr
  000000                       M       $CFKIL  100     ;Abort IND and any nested command files
  000000                       M       $EMTTR  40      ;Trace EMT calls (SET EMT TRACE)
  000000                       M       $INDDW  20      ;IND data segment has been written to INDTMP file
  000000                       M       $DUPRN  10      ;DUP is running
  000000                       M       $WDISP  4       ;Need to redisplay current window for job
  000000                       M       $DIBOL  2       ;DIBOL is default compiler rather than DBL
  000000                       M       $STSNG  1       ;SET TT SINGLE (default to single char activation)
                               ;
                               ;  LSW6 flags that are inherited by subprocesses
                               ;
  000000                       M       ISPF6   $SNWTT!$DIBOL!$STSNG
```

```
                                     ;-------------------------------------------------------------------------------
                                     ;  Status flags in LSW7
                                     ;
 000000                              M       $INDAB  1       ;Abort IND command files if errors occur
 000000                              M       $TTGAG  2       ;SET TT QUIET done (suppress SEND messages)
 000000                              M       $MAPOK  4       ;Memory mapping info in context block is valid
 000000                              M       $SOTFN  10      ;Set job scheduling for output buffer low or empty
 000000                              M       $UKMRN  20      ;User command processor is running
 000000                              M       $UCLRN  40      ;TSXUCL program is running
 000000                              M       $UCLCF  100     ;SET UCL FIRST
 000000                              M       $UCLCM  200     ;SET UCL MIDDLE
 000000                              M       $UCLCL  400     ;SET UCL LAST
 000000                              M       $SLON   1000    ;Enable Single Line Editor is enabled for this line
 000000                              M       $SLTTY  2000    ;Enable SL to operate on .TTYIN input
 000000                              M       $SLLET  4000    ;Enable LET option for SL
 000000                              M       $SLKED  10000   ;Enable KED option for SL
 000000                              M       $SLINI  20000   ;SL has been initialized for current edit line
 000000                              M       $UKMON  40000   ;User command processor enabled
 000000                              M       $NOINT  100000  ;Do not schedule this job as interactive
                                     ;
                                     ;  LSW7 flags that are inherited by subprocesses
                                     ;
 000000                              M       ISPF7   $SLON!$SLKED!$SLTTY!$SLLET!$INDAB!$TTGAG!$UCLCF!$UCLCM!$UCLCL
 000000                              M       ISPF7   ISPF7!$UKMON
```

```
                                    ;-----------------------------------------------------------------------------
                                    ;  Status flags in LSW8
                                    ;
000000                              M       $SGQ0   1       ;Signal terminal if QUAN0 exceeded
000000                              M       $SGQ1   2       ;Signal terminal if QUAN1 exceeded
000000                              M       $SGQ1A  4       ;Signal terminal if QUAN1A exceeded
000000                              M       $SGQ1B  10      ;Signal terminal if QUAN1B exceeded
000000                              M       $SGQ1C  20      ;Signal terminal if QUAN1C exceeded
000000                              M       $SGQ2   40      ;Signal terminal if QUAN2 exceeded
000000                              M       $SGQ3   100     ;Signal terminal if QUAN3 exceeded
000000                              M       $SGIIO  1000    ;Signal terminal if INTIOC exceeded
000000                              M       $SGHIO  2000    ;Signal terminal if HIPRCT exceeded
                                    ;
                                    ;  All signal flags cleared by SET SIGNAL OFF
                                    ;
000000                              M       $SGALL  $SGQ0!$SGQ1!$SGQ1A!$SGQ1B!$SGQ1C!$SGQ2!$SGQ3!$SGIIO!$SGHIO
```

```
                          ;-----------------------------------------------------------------------------
                          ;  Status flags in LSW9
                          ;
000000                    M       $SUCF   1       ;Processing a startup command file
000000                    M       $LOFCF  2       ;Processing a logoff command file
000000                    M       $VIRJB  4       ;Virtual job -- Don't map UPAR7 to RMON
000000                    M       $DEBUG  10      ;Program is being run with the debugger
000000                    M       $DBGBK  20      ;Force a debugger breakpoint (user typed ctrl-D)
000000                    M       $DBKMN  40      ;Use debugger on TSKMON
000000                    M       $CTRLD  100     ;Allow ctrl-D to enter debugger
000000                    M       $RNIOP  200     ;Map PAR7 to I/O page for program being run
000000                    M       $NABRS  400     ;Need to reset speed for autobaud detection
000000                    M       $NTGCC  1000    ;Deferred control-C for non-terminating .GTLIN
000000                    M       $RTCS   2000    ;Receiving terminal control sequence
000000                    M       $NOUCR  4000    ;Do not execute any user-mode completion routines
000000                    M       $NOABT  10000   ;Do not allow job aborts
000000                    M       $RNMLK  20000   ;Lock program being started in low memory
000000                    M       $SETRN  40000   ;SETUP program is running
000000                    M       $VBELL  100000  ;Bell has been rung to signal virtual wait condition
                          ;
                          ;  LSW9 flags that are inherited by subprocesses
                          ;
000000                    M       ISPF9   $CTRLD
```

```
                                  ;-------------------------------------------------------------------------------
                                  ;  Status flags in LSW10
                                  ;
  000000                          M       $SXOFF  2       ;Tell transmitter interrupt rtn to send an XOFF
  000000                          M       $SXON   4       ;Tell transmitter interrupt rtn to send an XON
  000000                          M       $HISTP  10      ;XOFF has been transmitted due to input silo full
  000000                          M       $NDICP  20      ;Need to do input character processing for this line
  000000                          M       $DNICP  40      ;Did input char processing during this clock cycle
  000000                          M       $ICPFK  100     ;An input character processing fork is active
  000000                          M       $RBRK   200     ;Received break (framing error)
  000000                          M       $DHXOF  400     ;Force XOFF transmission to DH11 line
  000000                          M       $DHXON  1000    ;Force XON transmission to DH11 line
  000000                          M       $DHBF1  2000    ;DH11 DMA buffer 1 is ready for transmission
  000000                          M       $DHBF2  4000    ;DH11 DMA buffer 2 is currently being transmitted
  000000                          M       $DHCDO  10000   ;DH line needs clock driven output processing
```

```
                                ;-------------------------------------------------------------------------------
                                ;  Status flags in LSW11
                                ;
  000000                        M       $PWKEY  1       ;Enable keyboard control character to print windows
  000000                        M       $NOWIN  2       ;Suppress process windowing
  000000                        M       $V52EM  4       ;VT52 emulation mode (flag set in primary line entry)
  000000                        M       $TDEAD  10      ;Flag line as dead after buffer allocation
  000000                        M       $GEMAR  20      ;Getting EMT argument block, return 0 if mem trap
  000000                        M       $RCLRV  40      ;Recall SL commands in reverse order (oldest 1st)
  000000                        M       $RDSAV  100000  ;In process of reading SAV file to start program
                                ;
                                ;  LSW11 flags that are inherited by subprocesses
                                ;
  000000                        M       ISPF11  $PWKEY!$RCLRV
```

```
                                  .SBTTL  Privilege Flags
                             ;-------------------------------------------------------------------------------
                             ;  The following flags grant privileges to jobs.
                             ;  Note, if any privileges are changed, the following items must also
                             ;  be changed:
                             ;
                             ;   1.  The table of privilege keywords in TSKMN3.
                             ;   2.  The TSAUTH program.
                             ;   3.  The LOGON program.
                             ;
                             ;  Flags in the first privilege word.
                             ;
000000                       M        P0$NEW  100000  ;New privilege control has been set for job
000000                       M        P0$ALC  40000   ;ALLOCATE - Allocate devices
000000                       M        P0$DBG  20000   ;DEBUG - Enable use of debugging facilities
000000                       M        P0$DET  10000   ;DETACH - Allow use of detached jobs
000000                       M        P0$SPF  4000    ;SPFUN - Allow use of .SPFUN to dir-structured dev
000000                       M        P0$MEM  2000    ;MEMMAP - Access any area of physical memory
000000                       M        P0$BYP  1000    ;BYPASS - Bypass all file access restrictions
000000                       M        P0$OPR  400     ;OPER - Provide operator privileges
000000                       M        P0$LOK  200     ;PSWAPM - Allow job to be locked in memory
000000                       M        P0$RT   100     ;REALTIME - Allow use of real-time facilities
000000                       M        P0$SND  40      ;SEND - Allow use of SEND command and EMT
000000                       M        P0$NAM  20      ;SETNAME - Allow job to change name and password
000000                       M        P0$SPV  10      ;SETPRV - Allow job to change any privilege
000000                       M        P0$NFR  4       ;NFSREAD - Non-file-structured open for read access
000000                       M        P0$NFW  2       ;NFSWRITE - Non-file-structured open for write access
000000                       M        P0$SYS  1       ;SYSPRV - Allow system manager privilege
                             ;
                             ;  Privilege flags in second privilege control word
                             ;
000000                       M        P2$TRM  100000  ;TERMINAL - Allow terminal control
000000                       M        P2$WRL  40000   ;WORLD - Provide access to any other job
000000                       M        P2$GRP  20000   ;GROUP - Access other jobs with same project number
000000                       M        P2$SAM  10000   ;SAME - Access other jobs with same PPN
000000                       M        P2$VIR  4000    ;VIRTUAL - Allow use of virtual jobs
000000                       M        P2$MSG  2000    ;MESSAGE - Use message communication facility
000000                       M        P2$RLK  1000    ;RLOCK - Allow use of record-locking facility
000000                       M        P2$CGR  400     ;SYSGBL - Allow job to use global regions
000000                       M        P2$CXT  200     ;GETCXT - Copy file context from another job
000000                       M        P2$UP4  10      ;User privilege 4
000000                       M        P2$UP3  4       ;User privilege 3
000000                       M        P2$UP2  2       ;User privilege 2
000000                       M        P2$UP1  1       ;User privilege 1
                             ;
                             ;  Number of words to hold privilege flags
                             ;
000000                       M        PVNPW   2.      ;Number of words for privilege flags
                             ;
                             ;  Standard privileges for users without operator privilege
                             ;
000000                       M        P0$$NP  P0$NEW!P0$ALC!P0$DBG!P0$DET!P0$SPF!P0$SND!P0$NAM!P0$NFR!P0$NFW
000000                       M        P2$$NP  P2$SAM!P2$VIR!P2$MSG!P2$RLK
```

```
      1                                         .SBTTL  Job Execution States
      2                                 ;-----------------------------------------------------------------------
      3                                 ;  A logged on job will always be in one of the following states.
      4                                 ;  The state of a job is stored in the LSTATE table.
      5                                 ;  The lower the state number, the higher the priority.
      6                                 ;
      7 000000                          RZ
      8 000000                          RB      S$DUMY  1       ;Dummy entry to make first entry value = 1
                000000                                                                  S$DUMY=$AC
      9                                 ;
     10                                 ;  Real-time high-priority state
     11                                 ;
     12 000000                          RB      S$RT    1       ;Real time priority (PRIHI - 99)
                000001                                                                  S$RT=$AC
     13 000000                          RB      S$$RT   1       ;End of Real-time priority states
                000002                                                                  S$$RT=$AC
     14                                 ;
     15                                 ;  High-priority states
     16                                 ;
     17 000000                          RB      S$TTSC  1       ;TT input done and doing single character activation
                000003                                                                  S$TTSC=$AC
     18 000000                          RB      S$TTFN  1       ;TT input done (activation character received)
                000004                                                                  S$TTFN=$AC
     19 000000                          RB      S$OTFN  1       ;TT output buffer empty
                000005                                                                  S$OTFN=$AC
     20 000000                          RB      S$HICP  1       ;Interactive job computation
                000006                                                                  S$HICP=$AC
     21 000000                          RB      S$TWFN  1       ;Timed wait completion (.TWAIT or .MRKT)
                000007                                                                  S$TWFN=$AC
     22 000000                          RB      S$OTLO  1       ;Output buffer low
                000010                                                                  S$OTLO=$AC
     23 000000                          RB      S$IOFN  1       ;I/O Completed
                000011                                                                  S$IOFN=$AC
     24 000000                          RB      S$$HIP  1       ;End of high-priority states
                000012                                                                  S$$HIP=$AC
     25                                 ;
     26                                 ;  Compute-bound states
     27                                 ;
     28 000000                          RB      S$CPU   1       ;CPU-bound job
                000013                                                                  S$CPU=$AC
     29 000000                          RB      S$LOW   1       ;Low priority computation (priority 0 - PRILOW)
                000014                                                                  S$LOW=$AC
     30 000000                          RB      S$$RUN  1       ;Lowest priority of jobs that want to run
                000015                                                                  S$$RUN=$AC
     31                                 ;
     32                                 ;  Wait states
     33                                 ;
     34 000000                          RB      S$NEDQ  1       ;Waiting for I/O queue element
                000016                                                                  S$NEDQ=$AC
     35 000000                          RB      S$QMIO  1       ;Waiting to do a mapped I/O operation
                000017                                                                  S$QMIO=$AC
     36 000000                          RB      S$QCCB  1       ;Waiting for data cache control block
                000020                                                                  S$QCCB=$AC
     37 000000                          RB      S$QCXB  1       ;Waiting for access to job context block buffer
                000021                                                                  S$QCXB=$AC
     38 000000                          RB      S$QUSR  1       ;Waiting for access to USR data base
                000022                                                                  S$QUSR=$AC
     39 000000                          RB      S$IOWT  1       ;Waiting for I/O to finish
                000023                                                                  S$IOWT=$AC
     40 000000                          RB      S$OTWT  1       ;Waiting for TT output buffer space
                000024                                                                  S$OTWT=$AC
     41 000000                          RB      S$SFWT  1       ;Waiting for locked block in shared file
                000025                                                                  S$SFWT=$AC
     42 000000                          RB      S$WSMB  1       ;Waiting for free system message buffer
                000026                                                                  S$WSMB=$AC
     43 000000                          RB      S$SPDB  1       ;Waiting for spool file disk space
                000027                                                                  S$SPDB=$AC
     44 000000                          RB      S$INWT  1       ;Waiting for input from TT
                000030                                                                  S$INWT=$AC
     45 000000                          RB      S$QSPD  1       ;Waiting for access to special device data base
                000031                                                                  S$QSPD=$AC
     46 000000                          RB      S$SPCB  1       ;Waiting for spool file control block
                000032                                                                  S$SPCB=$AC
     47 000000                          RB      S$MSWT  1       ;Waiting for inter-job message
                000033                                                                  S$MSWT=$AC
     48 000000                          RB      S$SPND  1       ;.SPND done -- Waiting for .RSUM to restart job
                000034                                                                  S$SPND=$AC
     49 000000                          RB      S$TMWT  1       ;Waiting for timed interval to pass
                000035                                                                  S$TMWT=$AC
     50 000000                          RB      S$WFM   1       ;Waiting for memory expansion
                000036                                                                  S$WFM=$AC
```

```
                                              .SBTTL  System message buffers
                                      ;------------------------------------------------------------------------
                                      ;  Format of a system message buffer block.
                                      ;
000000                                RZ
000000                                RW      SB$LNK  1       ;Link to next message block
        000000                                                                                   SB$LNK=$AC
000000                                RW      SB$PNT  1       ;Pointer to next character in buffer
        000002                                                                                   SB$PNT=$AC
000000                                RW      SB$TXT  44.     ;Storage area for message text
        000004                                                                                   SB$TXT=$AC
000000                                RW      SB$END  0       ;End of text storage area
        000134                                                                                   SB$END=$AC
000000                                RW      SB$$SZ  0       ;Size of system message block
        000134                                                                                   SB$$SZ=$AC
```

```
                              .SBTTL  Configuration and system generation words
                        ;-------------------------------------------------------------------------
                        ;   System configuration word (300)
                        ;
000000                  M         CW$FB    1        ;FB monitor
000000                  M         CW$GDH   4        ;Graphics display hardware (VT-11 or VS-60)
000000                  M         CW$BTH   10       ;Batch is in control
000000                  M         CW$SLE   20       ;Single-line editor active
000000                  M         CW$50H   40       ;50-Hz clock
000000                  M         CW$FPU   100      ;Floating point unit installed
000000                  M         CW$FGJ   200      ;Foreground job active
000000                  M         CW$LGS   400      ;Linked with graphics scroller
000000                  M         CW$USR   1000     ;USR permanently resident
000000                  M         CW$LSI   4000     ;CPU is LSI-11
000000                  M         CW$XM    10000    ;XM Monitor
000000                  M         CW$CSR   20000    ;System cllock has a status register
000000                  M         CW$KWP   40000    ;KW11P clock exists
000000                  M         CW$LPC   100000   ;System has a clock
                        ;
                        ;   Extended configuration word (370)
                        ;
000000                  M         CW$CSH   1        ;Cache memory present
000000                  M         CW$PAR   2        ;Parity memory installed
000000                  M         CW$RSR   4        ;Readable switch register
000000                  M         CW$WCD   10       ;Writable console display
000000                  M         CW$RLH   20       ;A handler has been released
000000                  M         CW$ESP   40       ;Set exit noswap
000000                  M         CW$QBS   100      ;Running on Q-bus system
000000                  M         CW$CIS   200      ;Hardware has CIS instructions
000000                  M         CW$EIS   400      ;Hardware has EIS instructions
000000                  M         CW$V60   1000     ;VT60 display exists
000000                  M         CW$PRO   20000    ;Running on PRO-xxx "personal" computer
000000                  M         CW$70    40000    ;Processor is 11/70
000000                  M         CW$60    100000   ;Processor is 11/60
                        ;
                        ;   System generation flag word (372)
                        ;
000000                  M         SG$ELG   1        ;Error logging is present
000000                  M         SG$MMU   2        ;Memory management option is present
000000                  M         SG$IOT   4        ;I/O timeout support is present
000000                  M         SG$EMT   10       ;Running under RT-11 emulator
000000                  M         SG$PAR   1000     ;Memory parity option is present
000000                  M         SG$MTM   2000     ;SJ mark-time option present
000000                  M         SG$MTS   20000    ;Multi-terminal option present
000000                  M         SG$SYJ   40000    ;System job support present
000000                  M         SG$TSX   100000   ;Running under TSX-Plus
                        ;
                        ;   Spooler control flags stored in SPSTAT (RMON offset 414)
                        ;
000000                  M         SS$RUN   200      ;Spooler is running
000000                  M         SS$PRT   10000    ;Print screen from PI handler
                        ;
                        ;   IND control flags stored in INDSTA (RMON offset 417)
                        ;
000000                  M         IN$ACT   200      ;IND is active and should be recalled on command exit
000000                  M         IN$CNT   100      ;IND is being reentered by KMON to continue processing
000000                  M         IN$CMD   40       ;IND is passing a command to KMON for execution
```

```
                                 ;
                                 ;  Command file control word flags CFSTS (RMON offset 366)
                                 ;
   000000                        M      CFACFL  110400  ;Input is coming from a command file
                                 ;
                                 ;  RT-11 TT option word (word preceding word pointed to by location 30)
                                 ;
   000000                        M      TO$TAB  1       ;Hardware tab supported by terminal
   000000                        M      TO$FF   4       ;Hardware form-feed supported by terminal
   000000                        M      TO$LC   40000   ;Allow lower-case character input
   000000                        M      TO$SCP  100000  ;Do scope type processing of rub-out characters
                                 ;
                                 ;  RT-11 command file option flags in CFSTS (RMON offset 366)
                                 ;
   000000                        M      CF$IND  4       ;Command files are to be processed by IND
   000000                        M      CF$QUT  2000    ;Set TT quiet has been done
                                 ;
                                 ;  RT-11 offset from start of RMON to EMT dispatch table (RMON offset 316)
                                 ;
                                 ;  This word is now reserved for use by DBL.  It must be zeroed at
                                 ;  job initialization and not used by the operating system.
                                 ;
```

```
                                .SBTTL  Overlay system region offsets
                        ;-----------------------------------------------------------------------------
                        ;  Format of the overlay table $OVTAB.
                        ;
 000000                 RZ
 000000                 RW      O.ADR   1       ;Overlay virtual address
         000000                                                              O.ADR=$AC
 000000                 RW      O.PAR   0       ;Overlay par5 value (initialized when loaded)
         000002                                                              O.PAR=$AC
 000000                 RW      O.BLK   1       ;Overlay starting disk block number
         000002                                                              O.BLK=$AC
 000000                 RW      O.SIZ   1       ;Overlay size in number of words
         000004                                                              O.SIZ=$AC

                                .SBTTL  Virtual overlay handler offsets
                        ;-----------------------------------------------------------------------------
                        ;  The following offsets are relative to a jobs overlay table.
                        ;  The address of the overlay table is stored in location 64 of the SAV file.
                        ;
 000000                 M       VO$WDE  -16     ;Pointer past end of PLAS Window Definition Blocks
 000000                 M       VO$WDB  -14     ;Pointer to first PLAS Window Definition Block
 000000                 M       VO$RDB  -12     ;Pointer to Region Definition Block
 000000                 M       VO$HIR  -4      ;Address beyond end of root segment
 000000                 M       VO$HIO  -2      ;Address beyond end of /O overlays
```

```
                                 .SBTTL  I/O System Tables
                         ;-----------------------------------------------------------------------
                         ;  Format of an I/O Channel.
                         ;
 000000                  RZ
 000000                  RW      C.CSW   1       ;Channel Status Word (CSW)
         000000                                                                 C.CSW=$AC
 000000                  RW      C.SBLK  1       ;Starting block number of file
         000002                                                                 C.SBLK=$AC
 000000                  RW      C.LENG  1       ;Number of blocks allocated for file
         000004                                                                 C.LENG=$AC
 000000                  RW      C.USED  1       ;Highest block number written to file
         000006                                                                 C.USED=$AC
 000000                  RB      C.NUMQ  1       ;Number of I/O requests pending for channel
         000010                                                                 C.NUMQ=$AC
 000000                  RB      C.DEVQ  1       ;Device unit number
         000011                                                                 C.DEVQ=$AC
 000000                  RW      CHNSIZ  0       ;Size of I/O channel block
         000012                                                                 CHNSIZ=$AC
                         ;
                         ;  Flags in the Channel Status Word (C.CSW).
                         ;
 000000                  M       CS$OPN  100000  ;Channel is open
 000000                  M       CS$RON  40000   ;Read-only access
 000000                  M       CS$EOF  20000   ;End of file hit
 000000                  M       CS$SEG  17400   ;Directory segment number containing entry for file
 000000                  M       CS$ENT  200     ;Channel was opened with a .ENTER
 000000                  M       CS$SPL  100     ;Channel is opened to spooled device
 000000                  M       CS$NMX  76      ;Device table index
 000000                  M       CS$ERR  1       ;Hard error occured
```

```
      1                                    .SBTTL  I/O queue entry
      2                                 ;-----------------------------------------------------------------------
      3                                 ;  Format of an I/O queue entry.
      4                                 ;
      5 000000                          RZ
      6 000000                          RW      Q.LINK   1        ;Flink to next Queue entry
                000000                                                                         Q.LINK=$AC
      7 000000                          RW      Q.CSW    1        ;Address of CSW for channel making request
                000002                                                                         Q.CSW=$AC
      8 000000                          RW      Q.BLKN   1        ;Physical block number of request
                000004                                                                         Q.BLKN=$AC
      9 000000                          RB      Q.FUNC   1        ;Special function code
                000006                                                                         Q.FUNC=$AC
     10 000000                          RB      Q.UNIT   1        ;Device unit number
                000007                                                                         Q.UNIT=$AC
     11 000000                          M       Q.JNUM   Q.UNIT   ;Job number issuing request
     12 000000                          RW      Q.BUFF   1        ;User buffer address relative to Q.PAR
                000010                                                                         Q.BUFF=$AC
     13 000000                          RW      Q.WCNT   1        ;Word count (+=>Read, 0=>Seek, -=>Write)
                000012                                                                         Q.WCNT=$AC
     14 000000                          RW      Q.COMP   1        ;Address of completion routine for request
                000014                                                                         Q.COMP=$AC
     15 000000                          RW      Q.PAR    1        ;PAR relocation bias for buffer address
                000016                                                                         Q.PAR=$AC
     16 000000                          RW      Q.PA5    1        ;Mapping value for kernel PAR 5
                000020                                                                         Q.PA5=$AC
     17 000000                          RW      Q.UMRX   1        ;Address of unibus map register block assigned for I/O
                000022                                                                         Q.UMRX=$AC
     18 000000                          RW      Q.CHAN   1        ;User channel # associated with I/O request
                000024                                                                         Q.CHAN=$AC
     19 000000                          RB      Q.DEVX   1        ;Device index number
                000026                                                                         Q.DEVX=$AC
     20 000000                          RB      Q.FLAG   1        ;QF$xxx control flags (see below)
                000027                                                                         Q.FLAG=$AC
     21 000000                          RB      Q.JOB    1        ;Number of job that is making request
                000030                                                                         Q.JOB=$AC
     22 000000                          RB      Q.UMVB   1        ;Unibus base register number
                000031                                                                         Q.UMVB=$AC
     23 000000                          RW      Q.UMPB   1        ;Original value of Q.BUFF when I/O was initiated
                000032                                                                         Q.UMPB=$AC
     24 000000                          RW      Q.UMPP   1        ;Original value of Q.PAR when I/O was initiated
                000034                                                                         Q.UMPP=$AC
     25 000000                          RW      Q.PA6    1        ;Mapping for job's context block
                000036                                                                         Q.PA6=$AC
     26 000000                          RW      Q.UCSW   1        ;Address of user's channel block
                000040                                                                         Q.UCSW=$AC
     27 000000                          RW      Q.ICSW   5        ;Internal channel block passed with Q elem to handlrs
                000042                                                                         Q.ICSW=$AC
     28 000000                          RW      IOQSIZ   0        ;Size of I/O queue entry
                000054                                                                         IOQSIZ=$AC
```

```
                                        .SBTTL  Completion queue entry
                                ;--------------------------------------------------------------------------
                                ;  Format of a completion queue element.
                                ;  Note: A completion queue entry is allocated the same number of words
                                ;        as an I/O queue entry and the fields in a completion queue entry
                                ;        are mapped over the fields in an I/O queue entry.
                                ;
 000000                         M       CQ$LNK  Q.LINK  ;Link to next queue entry
 000000                         M       CQ$HOT  Q.CSW   ;High-order time for timer queue elements
 000000                         M       CQ$LOT  Q.BLKN  ;Low-order time for timer queue elements
 000000                         M       CQ$JOB  Q.FUNC  ;Job number (byte)
 000000                         M       CQ$RNS  Q.UNIT  ;Execution state for completion routine (byte)
 000000                         M       CQ$R0   Q.BUFF  ;Value to pass in R0 when compl routine called
 000000                         M       CQ$R1   Q.WCNT  ;Value to pass in R1 when compl routine called
 000000                         M       CQ$RTN  Q.COMP  ;Address of completion routine
 000000                         M       CQ$PA5  Q.PA5   ;Value for kernel PAR 5 mapping for compl routine
 000000                         M       CQ$FLG  Q.FLAG  ;QF$xxx control flags (byte) (see below)
 000000                         M       CQ$PRI  Q.DEVX  ;Execution priority for completion routine (byte)
 000000                         M       CQ$CP   Q.UMRX  ;Completion routine class priority (see CP$xxx below)

                                ;--------------------------------------------------------------------------
                                ;  Control flags stored in the Q.FLAG cell of I/O queue elements and the
                                ;  CQ$FLG cell of completion routine queue elements.
                                ;
 000000                         M       QF$SCR  1       ;Completion routine is for system - run in kernel mode
 000000                         M       QF$MIO  2       ;Secondary I/O operation for mapped I/O
 000000                         M       QF$CIO  4       ;Secondary I/O operation for data caching operation
 000000                         M       QF$OWC  10      ;(For mapped I/O) Use original word count
 000000                         M       QF$IOT  20      ;Completion routine for handler .TIMIO request
 000000                         M       QF$SYN  40      ;Completion routine for .SYNCH
```

```
                                        .SBTTL  I/O timer requests
                                ;--------------------------------------------------------------------------
                                ;  Format of a queue element used to store a device handler i/o
                                ;  timeout request.
                                ;
 000000                         RZ
 000000                         RW      IT$HOT  1       ;High-order time value
          000000                                                                IT$HOT=$AC
 000000                         RW      IT$LOT  1       ;Low-order time value
          000002                                                                IT$LOT=$AC
 000000                         RW      IT$LNK  1       ;Link to next timer queue element
          000004                                                                IT$LNK=$AC
 000000                         RW      IT$JOB  1       ;Number of job to synch with
          000006                                                                IT$JOB=$AC
 000000                         RW      IT$SEQ  1       ;Request sequence number
          000010                                                                IT$SEQ=$AC
 000000                         RW      IT$SYS  1       ;Not used
          000012                                                                IT$SYS=$AC
 000000                         RW      IT$RTN  1       ;Address of completion routine
          000014                                                                IT$RTN=$AC
```

```
                                .SBTTL  Swapper Command Packets
                        ;-------------------------------------------------------------------------------
                        ;  The following packets are used to pass special function commands
                        ;  to the job swapper.
                        ;
 000000                 RZ
 000000                 RW      SP$LNK  1       ;Link to next packet on list
         000000                                                         SP$LNK=$AC
 000000                 RB      SP$CMD  1       ;Command value (see SA$xxx below)
         000002                                                         SP$CMD=$AC
 000000                 RB      SP$JOB  1       ;Number of associated job
         000003                                                         SP$JOB=$AC
 000000                 RW      SP$DW1  1       ;Data word 1
         000004                                                         SP$DW1=$AC
 000000                 RW      SP$$SZ  0       ;Size of a command packet
         000006                                                         SP$$SZ=$AC
                        ;
                        ;  Command values that can be passed to the swapper (must be even values)
                        ;
 000000                 M       SA$LOK  0       ;Lock a job in low memory
 000000                 M       SA$RGN  2       ;Allocate memory for a shared global PLAS region
```

```
                                        .SBTTL  Job initiation information blocks
                                ;------------------------------------------------------------------------
                                ;  The following template is applied to an I/O queue element used to
                                ;  pass information to the job initiator.
                                ;
000000                          M       SF2LEN  16.     ;Number of bytes to reserve for 2ndary command file
                                ;
000000                          RZ
000000                          RB      IB$SF2  SF2LEN  ;Name of secondary start-up command file
        000000                                                                  IB$SF2=$AC
000000                          RB      IB$IJ   1       ;Index number of initiating job
        000020                                                                  IB$IJ=$AC
                                ;
000000                          RW      IB$$SZ  0       ;End of initiation information block
        000022                                                                  IB$$SZ=$AC
```

```
                                        .SBTTL  Job monitoring control block
                                ;---------------------------------------------------------------------------
                                ;  The following control blocks are used to implement the facility
                                ;  that allows one TSX-Plus job to monitor the status of another job.
                                ;
000000                          RZ
000000                          RW      JM$LNK  1       ;Link to next control block
        000000                                                                          JM$LNK=$AC
000000                          RW      JM$RTN  1       ;Address of completion routine
        000002                                                                          JM$RTN=$AC
000000                          RB      JM$JOB  1       ;Job index # of monitoring job
        000004                                                                          JM$JOB=$AC
000000                          RW      JM$$SZ  0       ;Size of control block
        000006                                                                          JM$$SZ=$AC
                                ;
                                ;  Status code values generated by the system to indicate job state changes
                                ;
000000                          M       JS$ON   1       ;Job initialization
000000                          M       JS$LOG  2       ;Job logged on with LOGON program
000000                          M       JS$RUN  3       ;Began execution of a program
000000                          M       JS$KMN  4       ;Program exited to TSKMON
000000                          M       JS$OFF  5       ;Job logged off
```

```
      1                                         .SBTTL  Process window control block
      2                                 ;-------------------------------------------------------------------------
      3                                 ;  Format of a process window control block.
      4                                 ;
      5 000000                          M       TCSBSZ  12.     ;Max number of chars in a terminal control sequence
      6                                 ;
      7 000000                          RZ
      8 000000                          RB      DW$JOB  1       ;Job number of owner job
                000000                                                                 DW$JOB=$AC
      9 000000                          RB      DW$ID   1       ;Window id number
                000001                                                                 DW$ID=$AC
     10 000000                          RW      DW$LIN  1       ;Current line number
                000002                                                                 DW$LIN=$AC
     11 000000                          RW      DW$COL  1       ;Current column number
                000004                                                                 DW$COL=$AC
     12 000000                          RW      DW$LPP  1       ;Number of lines per page
                000006                                                                 DW$LPP=$AC
     13 000000                          RW      DW$CPL  1       ;Number of columns per line
                000010                                                                 DW$CPL=$AC
     14 000000                          RW      DW$TLN  1       ;Number of line at base of buffer
                000012                                                                 DW$TLN=$AC
     15 000000                          RW      DW$SRT  1       ;Top line of scrolling region
                000014                                                                 DW$SRT=$AC
     16 000000                          RW      DW$SRB  1       ;Bottom line of scrolling region
                000016                                                                 DW$SRB=$AC
     17 000000                          RW      DW$AW   1       ;Control flags (see AW$xxx flags below)
                000020                                                                 DW$AW=$AC
     18 000000                          RW      DW$CSP  1       ;Pointer to next char position in DW$CCB
                000022                                                                 DW$CSP=$AC
     19 000000                          RW      DW$CSR  1       ;Address of processing routine for next char
                000024                                                                 DW$CSR=$AC
     20 000000                          RW      DW$LPT  1       ;Pointer to 1st char of current line
                000026                                                                 DW$LPT=$AC
     21 000000                          RW      DW$RID  1       ;Address of region control block
                000030                                                                 DW$RID=$AC
     22 000000                          RW      DW$MAP  1       ;Value to map PAR to region
                000032                                                                 DW$MAP=$AC
     23 000000                          RB      DW$SLN  1       ;Saved line number
                000034                                                                 DW$SLN=$AC
     24 000000                          RB      DW$SCL  1       ;Saved column number
                000035                                                                 DW$SCL=$AC
     25 000000                          RB      DW$SCA  1       ;Saved character attributes
                000036                                                                 DW$SCA=$AC
     26 000000                          RB      DW$MSL  1       ;Max # lines that may scroll while detached from term
                000037                                                                 DW$MSL=$AC
     27 000000                          RB      DW$NSL  1       ;Number of lines which have scrolled since detached
                000040                                                                 DW$NSL=$AC
     28 000000                          RB      DW$CCA  1       ;Current character attribute flags
                000041                                                                 DW$CCA=$AC
     29 000000                          RB      DW$G0M  1       ;Current designation for G0 characters *keep together*
                000042                                                                 DW$G0M=$AC
     30 000000                          RB      DW$G1M  1       ;Current designation for G1 characters *keep together*
                000043                                                                 DW$G1M=$AC
     31 000000                          RB      DW$G2M  1       ;Current designation for G2 characters *keep together*
                000044                                                                 DW$G2M=$AC
     32 000000                          RB      DW$G3M  1       ;Current designation for G3 characters *keep together*
                000045                                                                 DW$G3M=$AC
```

```
   000000                      RB      DW$GLM  1       ;Current mapping for GL
               000046                                                          DW$GLM=$AC
   000000                      RB      DW$GRM  1       ;Current mapping for GR
               000047                                                          DW$GRM=$AC
   000000                      RB      DW$GLS  1       ;Mapping for next GL char if doing single shifting
               000050                                                          DW$GLS=$AC
   000000                      RB      DW$CSB  TCSBSZ  ;Control sequence buffer
               000051                                                          DW$CSB=$AC
                               ;
   000000                      RW      DW$$SZ  0       ;Size of control block
               000066                                                          DW$$SZ=$AC
```

```
                                   ;
                                   ;  Line attribute flags stored starting at WV$AL at front of window region
                                   ;
  000000                           M        AL$DHB  1       ;Bottom portion of a double-high line
  000000                           M        AL$DHT  2       ;Top portion of a double-high line
  000000                           M        AL$DWD  4       ;Double wide line
                                   ;
                                   ;  Character attribute flags
                                   ;
  000000                           M        AC$SET  3       ;Character set for this character
  000000                           M        AC$BLD  20      ;Bold
  000000                           M        AC$BLK  40      ;Blinking
  000000                           M        AC$REV  100     ;Reverse video
  000000                           M        AC$ULN  200     ;Underlined
                                   ;
                                   ;  Attributes for the entire window
                                   ;
  000000                           M        AW$52   1       ;VT52 terminal mode
  000000                           M        AW$200  2       ;VT200 terminal mode
  000000                           M        AW$132  4       ;132 column mode
  000000                           M        AW$INS  10      ;Insert mode
  000000                           M        AW$ACK  20      ;Application mode for cursor keys
  000000                           M        AW$REV  40      ;Reverse video (dark chars on light background)
  000000                           M        AW$ORS  100     ;Origin relative to scroll region
  000000                           M        AW$AKM  200     ;Application keypad mode
  000000                           M        AW$VCR  400     ;Make cursor visible
  000000                           M        AW$SS   1000    ;Single shift for next character
  000000                           M        AW$S52  2000    ;Simulate VT52 mode (term is actually VT100/200)
  000000                           M        AW$RPT  4000    ;Automatic keypad repeat is on
  000000                           M        AW$PRT  10000   ;Printer port has been selected (suspend windowing)
  000000                           M        AW$SPN  20000   ;Suspend window data processing
  000000                           M        AW$DDC  40000   ;Don't pass characters through to terminal
  000000                           M        AW$PRM  100000  ;Window is permanent
```

```
      1                                               .SBTTL  Printer attribute flags
      2                                       ;----------------------------------------------------------------------------
      3                                       ;  The following flags define printer attributes used to pass information
      4                                       ;  from the SET PRINTWINDOW Kmon command to the WINPRT program.
      5                                       ;
      6 000000                                M       PA$GRC  1       ;Can print graphics (line drawing) character set
      7 000000                                M       PA$UKC  2       ;Can print U.K. national character set
      8 000000                                M       PA$DSC  4       ;Can print Dec supplemental character set
      9 000000                                M       PA$BLD  10      ;Can print bold characters
     10 000000                                M       PA$ULN  20      ;Can underline characters
     11 000000                                M       PA$DWD  40      ;Can print double-wide characters
     12 000000                                M       PA$HQL  100     ;Can print in both draft and letter quality modes
     13 000000                                M       PA$LET  200     ;Select letter-quality mode
     14 000000                                M       PA$BEL  400     ;Ring bell when window data queued for printing
     15 000000                                M       PA$NWD  1000    ;Suppress printer width control (/NOWIDTH)
     16 000000                                M       PA$DTS  2000    ;Date/time stamp printed window
```

```
      1                                       .SBTTL  Key definition blocks
      2                               ;-----------------------------------------------------------------------
      3                               ;  Information related to user-defined keys (i.e., DEFINE/KEY ...)
      4                               ;
      5                               ;  Maximum number of characters in key definition string (including null).
      6                               ;
      7 000000                        M       KEYMXT  65.       ;Max # chars in key definition
      8                               ;
      9                               ;  Control block used to hold each key definition.
     10                               ;
     11 000000                        RZ
     12 000000                        RB      KD$COD  1         ;Key code (KC$xxx)
                000000                                                                KD$COD=$AC
     13 000000                        RB      KD$TYP  1         ;Key type (KT$xxx)
                000001                                                                KD$TYP=$AC
     14 000000                        RB      KD$FLG  1         ;KF$xxx flags (see below)
                000002                                                                KD$FLG=$AC
     15 000000                        RB      KD$TXT  KEYMXT    ;Key definition text string (asciz)
                000003                                                                KD$TXT=$AC
     16 000000                        RW      KD$$SZ  0         ;Size of key definition block
                000104                                                                KD$$SZ=$AC
     17                               ;
     18                               ;  Status flags stored in KD$FLG cell
     19                               ;
     20 000000                        M       KF$ECO  1         ;Echo the key definition when it is used
     21 000000                        M       KF$TRM  2         ;Terminate input line with key definition
     22                               ;
     23                               ;  Key type codes
     24                               ;
     25 000000                        M       KT$NRM  1         ;Normal function key
     26 000000                        M       KT$GLD  2         ;Gold key pressed with function key
     27 000000                        M       KT$LET  3         ;Key from keyboard
     28 000000                        M       KT$GLT  4         ;Gold letter key
     29                               ;
     30                               ;  Key codes
     31                               ;
     32 000000                        M       KC$PF1  1         ;PF1
     33 000000                        M       KC$PF2  2         ;PF2
     34 000000                        M       KC$PF3  3         ;PF3
     35 000000                        M       KC$PF4  4         ;PF4
     36 000000                        M       KC$KP0  5         ;KP0
     37 000000                        M       KC$KP1  6         ;KP1
     38 000000                        M       KC$KP2  7         ;KP2
     39 000000                        M       KC$KP3  10        ;KP3
     40 000000                        M       KC$KP4  11        ;KP4
     41 000000                        M       KC$KP5  12        ;KP5
     42 000000                        M       KC$KP6  13        ;KP6
     43 000000                        M       KC$KP7  14        ;KP7
     44 000000                        M       KC$KP8  15        ;KP8
     45 000000                        M       KC$KP9  16        ;KP9
     46 000000                        M       KC$DOT  17        ;PERIOD
     47 000000                        M       KC$COM  20        ;COMMA
     48 000000                        M       KC$MIN  21        ;MINUS
     49 000000                        M       KC$ENT  22        ;ENTER
     50 000000                        M       KC$UP   23        ;UP ARROW
     51 000000                        M       KC$DWN  24        ;DOWN ARROW
     52 000000                        M       KC$LFT  25        ;LEFT ARROW
     53 000000                            M       KC$RIT  26      ;RIGHT ARROW
     54 000000                            M       KC$E1   27      ;E1 - Find
     55 000000                            M       KC$E2   30      ;E2 - Insert here
     56 000000                            M       KC$E3   31      ;E3 - Remove
     57 000000                            M       KC$E4   32      ;E4 - Select
     58 000000                            M       KC$E5   33      ;E5 - Prev screen
     59 000000                            M       KC$E6   34      ;E6 - Next screen
     60 000000                            M       KC$F6   35      ;F6
     61 000000                            M       KC$F7   36      ;F7
     62 000000                            M       KC$F8   37      ;F8
     63 000000                            M       KC$F9   40      ;F9
     64 000000                            M       KC$F10  41      ;F10
     65 000000                            M       KC$F11  42      ;F11
     66 000000                            M       KC$F12  43      ;F12
     67 000000                            M       KC$F13  44      ;F13
     68 000000                            M       KC$F14  45      ;F14
     69 000000                            M       KC$F15  46      ;F15 - Help
     70 000000                            M       KC$F16  47      ;F16 - Do
     71 000000                            M       KC$F17  50      ;F17
     72 000000                            M       KC$F18  51      ;F18
     73 000000                            M       KC$F19  52      ;F19
     74 000000                            M       KC$F20  53      ;F20
```

```
      1                                          .SBTTL  Synch request control block
      2                                  ;-----------------------------------------------------------------------
      3                                  ;  Format of a .synch request control block.
      4                                  ;
      5 000000                           RZ
      6 000000                           RW      SN$LNK  1       ;Link to next active synch control block for job
                 000000                                                              SN$LNK=$AC
      7 000000                           RW      SN$JOB  1       ;Number of job doing .synch request
                 000002                                                              SN$JOB=$AC
      8 000000                           RW      SN$XX1  1       ;(unused)
                 000004                                                              SN$XX1=$AC
      9 000000                           RW      SN$XX2  1       ;(unused)
                 000006                                                              SN$XX2=$AC
     10 000000                           RW      SN$ID   1       ;Synch ID code passed to synch routine in R0
                 000010                                                              SN$ID=$AC
     11 000000                           RW      SN$XX3  1       ;(unused)
                 000012                                                              SN$XX3=$AC
     12 000000                           RW      SN$RTN  1       ;Address of synch routine to be called
                 000014                                                              SN$RTN=$AC
     13
     14                                          .SBTTL  Vector control block
     15                                  ;-----------------------------------------------------------------------
     16                                  ;  A vector control block is used to associate an interrupt vector with
     17                                  ;  a real-time program.
     18                                  ;  Note: if the size of a vector control block is changed, TSGEN must be
     19                                  ;        changed since it allocates space for vector control blocks.
     20                                  ;
     21 000000                           RZ
     22 000000                           RW      VC$JSR  2       ;Space for [JSR R2,RTINT] instruction
                 000000                                                              VC$JSR=$AC
     23 000000                           RW      VC$RTN  1       ;Address of user's completion routine
                 000004                                                              VC$RTN=$AC
     24 000000                           RB      VC$VEC  1       ;Address of interrupt vector / 2
                 000006                                                              VC$VEC=$AC
     25 000000                           RB      VC$JOB  1       ;Number of job associated with vector
                 000007                                                              VC$JOB=$AC
     26 000000                           RB      VC$PRI  1       ;Priority of completion routine
                 000010                                                              VC$PRI=$AC
     27 000000                           RB      VC$FLG  1       ;VF$xxx flags (see below)
                 000011                                                              VC$FLG=$AC
     28 000000                           RW      VC$$SZ  0       ;Size of a vector control block
                 000012                                                              VC$$SZ=$AC
     29                                  ;
     30                                  ;  Status flags stored in VC$FLG cell
     31                                  ;
     32 000000                           M       VF$DIR  1       ;Interrupt is directly connected to service routine
     33 000000                           M       VF$DET  2       ;Interrupt has been disconnected by .DEVICE
```

```
      1                                                 .SBTTL  TSXUCL data base definitions
      2                                         ;-------------------------------------------------------------------------------
      3                                         ;   Define data structures in TSXUCL data base.
      4                                         ;
      5 000000                                  M       UCLMKL  11.             ;Maximum length of a command keyword
      6 000000                                  M       UCLMCL  80.             ;Maximum length of a command string
      7                                         ;
      8                                         ;   Command control information
      9                                         ;
     10 000000                                  RZ
     11 000000                                  RW      UC$NDC  1               ;Number of defined commands
                000000                                                                                 UC$NDC=$AC
     12 000000                                  RW      UC$MDC  1               ;Maximum allowed defined commands
                000002                                                                                 UC$MDC=$AC
     13 000000                                  RW      UC$$SZ  0               ;Size of control block
                000004                                                                                 UC$$SZ=$AC
     14                                         ;
     15                                         ;   Command name template
     16                                         ;
     17 000000                                  RZ
     18 000000                                  RB      UK$NAM  UCLMKL+1        ;Asciz keyword name string
                000000                                                                                 UK$NAM=$AC
     19 000000                                  RW      UK$PTR  1               ;Pointer to command string descriptor
                000014                                                                                 UK$PTR=$AC
     20 000000                                  RW      UK$$SZ  0               ;Size of keyword descriptor block
                000016                                                                                 UK$$SZ=$AC
     21                                         ;
     22                                         ;   Command string storage
     23                                         ;
     24 000000                                  RZ
     25 000000                                  RB      US$TXT  UCLMCL          ;Asciz command string
                000000                                                                                 US$TXT=$AC
     26 000000                                  RW      US$$SZ  0               ;Size of command descriptor
                000120                                                                                 US$$SZ=$AC
```

```
                                   .SBTTL  PLAS region and window descriptor blocks
                           ;--------------------------------------------------------------------
                           ;  Region Control Block format
                           ;
  000000                   RZ
  000000                   RW      RC$LEN  1       ;Number 64-byte pages allocated for region
          000000                                                                 RC$LEN=$AC
  000000                   RW      RC$PAG  1       ;Number 512-byte pages allocated for region
          000002                                                                 RC$PAG=$AC
  000000                   RW      RC$BAS  1       ;Base 64-byte page number of region in memory
          000004                                                                 RC$BAS=$AC
  000000                   RW      RC$BLK  1       ;Block number in swap file / ptr to global RCB
          000006                                                                 RC$BLK=$AC
  000000                   RW      RC$FLG  1       ;Control flags -- See below
          000010                                                                 RC$FLG=$AC
  000000                   RW      RC$NAM  2       ;Name of region
          000012                                                                 RC$NAM=$AC
  000000                   RB      RC$CNT  1       ;Number of jobs attached to region
          000016                                                                 RC$CNT=$AC
  000000                   RB      RC$OWN  1       ;Job index number of job that created region
          000017                                                                 RC$OWN=$AC
  000000                   RW      RC$$SZ  0       ;Size of a region control block
          000020                                                                 RC$$SZ=$AC
                           ;
                           ;  Control flags stored in RC$FLG
                           ;
  000000                   M       RC$INM  1       ;Region is currently in memory
  000000                   M       RC$SFA  2       ;Space in swap file has been allocated for region
  000000                   M       RC$GBL  4       ;This is a named region
  000000                   M       RC$PVT  10      ;This region is private (local) to a job
  000000                   M       RC$LCG  20      ;This RCB is local copy of global RCB
  000000                   M       RC$EXC  40      ;Creating job has exclusive access to region
  000000                   M       RC$AGE  100     ;Automatically eliminate region when idle
  000000                   M       RC$EXI  200     ;Eliminate region on program exit or abort
  000000                   M       RC$OFF  400     ;Eliminate region on logoff
  000000                   M       RC$AEP  1000    ;Automatical elimination (AGE) pending next attach
  000000                   M       RC$PRM  2000    ;This is a permanent global region
  000000                   M       RC$USE  100000  ;This RCB is in use

                           ;--------------------------------------------------------------------
                           ;  Region Definition Block format  (in user's job area)
                           ;
  000000                   RZ
  000000                   RW      R.GID   1       ;Address of region control block
          000000                                                                 R.GID=$AC
  000000                   RW      R.GSIZ  1       ;Number of 64-byte pages to allocate for region
          000002                                                                 R.GSIZ=$AC
  000000                   RW      R.GSTS  1       ;Status flags (see below)
          000004                                                                 R.GSTS=$AC
  000000                   RW      R.NAME  2       ;Global region name (Rad50)
          000006                                                                 R.NAME=$AC
                           ;
                           ;  Status flags stored in R.GSTS
                           ;
  000000                   M       RS.CRR  100000  ;Region was successfully created (status)
  000000                   M       RS.UNM  40000   ;Windows were unmapped during region creation (status)
  000000                   M       RS.NAL  20000   ;Region was not previously allocated (status)
```

```
     45 000000                          M       RS.NEW  10000   ;Global region created due to attach request (status)
     46 000000                          M       RS.GBL  4000    ;Create local region within global region (w. error)
     47 000000                          M       RS.CGR  2000    ;Create local region within global region (create)
     48 000000                          M       RS.AGE  1000    ;Automatic global region elimination
     49 000000                          M       RS.EGR  400     ;Eliminate global region
     50 000000                          M       RS.EXI  200     ;Eliminate global region on exit or abort
     51 000000                          M       RS.PVT  1       ;This is a private region
```

```
                                        ;-------------------------------------------------------------------------
                                        ;  Window Control Block
                                        ;
  000000                                RZ
  000000                                RW      WC$RCB  1       ;Address of region control block (0 if not mapped)
          000000                                                                        WC$RCB=$AC
  000000                                RW      WC$SIZ  1       ;# 64-byte pages for window (0 if not allocated)
          000002                                                                        WC$SIZ=$AC
  000000                                RW      WC$VLO  1       ;Virtual address of window base
          000004                                                                        WC$VLO=$AC
  000000                                RW      WC$VHI  1       ;Virtual address of window top (addr of last byte)
          000006                                                                        WC$VHI=$AC
  000000                                RW      WC$LEN  1       ;# 64-byte pages actually mapped by window
          000010                                                                        WC$LEN=$AC
  000000                                RW      WC$OFF  1       ;Offset into region where window base starts
          000012                                                                        WC$OFF=$AC
  000000                                RB      WC$PAR  1       ;Base PAR index # (2 * PAR #)
          000014                                                                        WC$PAR=$AC
  000000                                RB      WC$NPR  1       ;# PAR's affected by window
          000015                                                                        WC$NPR=$AC
  000000                                RW      WC$$SZ  0       ;Size of a Window Control Block
          000016                                                                        WC$$SZ=$AC

                                        ;-------------------------------------------------------------------------
                                        ;  Window Definition Block  (in user's job area)
                                        ;
  000000                                RZ
  000000                                RB      W.NID   1       ;Window ID
          000000                                                                        W.NID=$AC
  000000                                RB      W.NAPR  1       ;Base PAR for window
          000001                                                                        W.NAPR=$AC
  000000                                RW      W.NBAS  1       ;Base virtual address
          000002                                                                        W.NBAS=$AC
  000000                                RW      W.NSIZ  1       ;# 64-byte pages for window
          000004                                                                        W.NSIZ=$AC
  000000                                RW      W.NRID  1       ;Address of region control block
          000006                                                                        W.NRID=$AC
  000000                                RW      W.NOFF  1       ;Offet into region where window base starts
          000010                                                                        W.NOFF=$AC
  000000                                RW      W.NLEN  1       ;# 64-byte pages to map
          000012                                                                        W.NLEN=$AC
  000000                                RW      W.NSTS  1       ;Status flags -- See below
          000014                                                                        W.NSTS=$AC
  000000                                RW      W.SIZE  0       ;Size of window definition block
          000016                                                                        W.SIZE=$AC
                                        ;
                                        ;  Status flags stored in W.NSTS
                                        ;
  000000                                M       WS.MAP  400     ;Automatically map after .CRAW
  000000                                M       WS.ELW  20000   ;A window was eliminated
  000000                                M       WS.UNM  40000   ;A window was unmapped
  000000                                M       WS.CRW  100000  ;Window was successfully created
```

```
     1                                             .SBTTL  Unibus Map Register descriptor block
     2                                   ;----------------------------------------------------------------------
     3                                   ;  The following descriptor block is used to hold information about
     4                                   ;  a Unibus map register set.
     5                                   ;  Note: The format of this descriptor must match the table generated
     6                                   ;        by the UMRDEF macro in TSGEN.
     7                                   ;
     8 000000                            RZ
     9 000000                            RB      UM$UMR  1       ;Number of register that is at base of this set
                000000                                                                         UM$UMR=$AC
    10 000000                            RB      UM$NMR  1       ;Number of registers in this set
                000001                                                                         UM$NMR=$AC
    11 000000                            RW      UM$WDS  1       ;Number of words that can be handled by this set
                000002                                                                         UM$WDS=$AC
    12 000000                            RW      UM$IOQ  1       ;0==>UMR free; non-zero==>Address of associated IOQ
                000004                                                                         UM$IOQ=$AC
    13 000000                            RW      UM$$SZ  0       ;Size of UMR descriptor block
                000006                                                                         UM$$SZ=$AC
```

```
                                           .SBTTL  Mapped I/O control blocks
                                   ;-----------------------------------------------------------------------
                                   ;  The following control blocks are used to store information about
                                   ;  I/O transferrs that need to be mapped because the device controller
                                   ;  only supports 18-bit addresses and we are running on a 22-bit
                                   ;  Q-bus system.
                                   ;  The head of the free list of these control blocks is MIOBHD.
                                   ;  Note: If the size of this control block is changed, TSGEN must
                                   ;  also be changed since it allocates space for the blocks.
                                   ;
 000000                            RZ
 000000                            RW      MI$LNK  1       ;Link to next control block
           000000                                                                  MI$LNK=$AC
 000000                            RW      MI$OQE  1       ;Address of original I/O queue element
           000002                                                                  MI$OQE=$AC
 000000                            RW      MI$TRW  1       ;Total number of words left to be transferred
           000004                                                                  MI$TRW=$AC
 000000                            RW      MI$CWC  1       ;Number of words being transferred by current op.
           000006                                                                  MI$CWC=$AC
 000000                            RW      MI$UBP  1       ;64-byte block base of user's buffer
           000010                                                                  MI$UBP=$AC
 000000                            RW      MI$UBO  1       ;Offset within 64-byte block of base of user's buffer
           000012                                                                  MI$UBO=$AC
 000000                            RW      MI$SBP  1       ;64-byte block base of system buffer
           000014                                                                  MI$SBP=$AC
 000000                            RB      MI$RWF  1       ;Read/Write flag (0=Read, 1=Write)
           000016                                                                  MI$RWF=$AC
 000000                            RB      MI$JOB  1       ;Job number doing the I/O operation
           000017                                                                  MI$JOB=$AC
 000000                            RW      MI$$SZ  0       ;Size of a control block
           000020                                                                  MI$$SZ=$AC


                                   ;-----------------------------------------------------------------------
                                   ;  Wait blocks used to queue up requests for mapped I/O operations
                                   ;  by the system.
                                   ;
 000000                            RZ
 000000                            RW      MW$LNK  1       ;Link to next block
           000000                                                                  MW$LNK=$AC
 000000                            RW      MW$IOQ  1       ;Address of pending I/O queue element
           000002                                                                  MW$IOQ=$AC
 000000                            RW      MW$$SZ  0       ;Size of control block
           000004                                                                  MW$$SZ=$AC
```

```
                                    .SBTTL  Cached I/O control block
                                  ;-----------------------------------------------------------------------
                                  ;  Control block used by an I/O operation that is accessing a data
                                  ;  cached device.
                                  ;
   000000                         RZ
   000000                         RW      CC$LNK  1       ;Link to next cache control block
           000000                                                                  CC$LNK=$AC
   000000                         RW      CC$BLK  1       ;Block number
           000002                                                                  CC$BLK=$AC
   000000                         RW      CC$DVU  1       ;Unit number (high byte), device index (low byte)
           000004                                                                  CC$DVU=$AC
   000000                         RW      CC$WCT  1       ;Word count (always positive)
           000006                                                                  CC$WCT=$AC
   000000                         RW      CC$OQE  1       ;Address of original I/O queue element
           000010                                                                  CC$OQE=$AC
   000000                         RW      CC$UBP  1       ;64-byte block number of base of user's buffer
           000012                                                                  CC$UBP=$AC
   000000                         RW      CC$UBO  1       ;Offset within 64-byte block of user buffer base
           000014                                                                  CC$UBO=$AC
   000000                         RW      CC$CBP  1       ;64-byte block number of cache buffer
           000016                                                                  CC$CBP=$AC
   000000                         RB      CC$WFL  1       ;Non-zero ==> Write to device taking place
           000020                                                                  CC$WFL=$AC
                                  ;
   000000                         RW      CC$$SZ  0       ;Size of block
           000022                                                                  CC$$SZ=$AC
```

```

                                        .SBTTL  Shared run-time descriptor block
                                ;-----------------------------------------------------------------------
                                ;  The following descriptor block is used to hold information
                                ;  about a shared run-time system.
                                ;
000000                          RZ
000000                          RW      RT$DEV  1       ;Rad50 device name
        000000                                                                  RT$DEV=$AC
000000                          RW      RT$NAM  2       ;Rad50 file name
        000002                                                                  RT$NAM=$AC
000000                          RW      RT$EXT  1       ;Rad50 extension
        000006                                                                  RT$EXT=$AC
000000                          RW      RT$BAS  1       ;Base 64-byte block # of run-time in phys memory
        000010                                                                  RT$BAS=$AC
000000                          RW      RT$TOP  1       ;Top 64-byte block # of run-time in phys memory
        000012                                                                  RT$TOP=$AC
000000                          RB      RT$FLG  1       ;Control flags (RF$xxx see below)
        000014                                                                  RT$FLG=$AC
000000                          RB      RT$SKP  1       ;# blocks to skip at front of file
        000015                                                                  RT$SKP=$AC
000000                          RW      RT$$SZ  0       ;Size of descriptor block
        000016                                                                  RT$$SZ=$AC
                                ;
                                ;  Control flags stored in RT$FLG
                                ;
000000                          M       RF$WRT  1       ;Write access is allowed to run-time
```

```
                                         .SBTTL  Device status flags
                                 ;-------------------------------------------------------------------------
                                 ;  Fields defined in the device status table DVSTAT.
                                 ;
 000000                          M       DS$DIR  100000  ;Device is directory structured
 000000                          M       DS$RON  40000   ;Read-only device
 000000                          M       DS$WON  20000   ;Write-only device
 000000                          M       DS$NRD  10000   ;Non RT-11 directory device (MT & CT)
 000000                          M       DS$ABT  4000    ;Handler abort code flag
 000000                          M       DS$SFN  2000    ;Handler accepts .SPFUN requests
 000000                          M       DS$AJT  1000    ;Enter handler abort entry every time a job terminates
 000000                          M       DS$VSZ  400     ;.SPFUN 373 can be used to determine volume size
 000000                          M       DS$ID   377     ;Device type code (See DI$xxx below)
                                 ;
                                 ;  Device type codes
                                 ;
 000000                          M       DI$RK   0       ;RK05
 000000                          M       DI$DT   1       ;TC11 DECtape
 000000                          M       DI$EL   2       ;Error logger
 000000                          M       DI$LP   3       ;Line printer
 000000                          M       DI$TT   4       ;Terminal
 000000                          M       DI$DL   5       ;RL01/RL02
 000000                          M       DI$DY   6       ;RX02
 000000                          M       DI$PC   7       ;PC11 Reader/Punch
 000000                          M       DI$MT   11      ;TM11 tape
 000000                          M       DI$RF   12      ;RF11
 000000                          M       DI$CT   13      ;TA11
 000000                          M       DI$CR   14      ;CR11 Card reader
 000000                          M       DI$DS   16      ;RJS03/RJS04
 000000                          M       DI$MM   20      ;TJU16/TU45 magtape
 000000                          M       DI$DP   21      ;RP11/RP02/RP03 disk
 000000                          M       DI$DX   22      ;RX01
 000000                          M       DI$DM   23      ;RK06/RK07 disk
 000000                          M       DI$NL   25      ;Null device
 000000                          M       DI$DD   34      ;TU58
 000000                          M       DI$MS   35      ;TS11/TS04 magtape
 000000                          M       DI$PD   36      ;PDT-11/130
 000000                          M       DI$LS   41      ;Serial line printer
 000000                          M       DI$MQ   42      ;Message queue server
 000000                          M       DI$DR   43      ;DRV11J
 000000                          M       DI$LD   46      ;Logical disk
 000000                          M       DI$VM   47      ;Virtual memory handler
 000000                          M       DI$DU   50      ;MSCP disk (RA80,RC25)
 000000                          M       DI$SL   51      ;Single line editor
 000000                          M       DI$PI   54      ;Professional PI handler
 000000                          M       DI$XL   57      ;XL handler for VTCOM
 000000                          M       DI$CL   DI$XL   ;TSX-Plus communications line (CL)
 000000                          M       DI$MU   60      ;TK50 cassette magtape
 000000                          M       DI$NC   61      ;Ethernet class handler
```

```
                                ;
                                ;  Flags defined in device table DVFLAG.
                                ;
  000000                        M       DX$DMA  1       ;This is a DMA device
  000000                        M       DX$MAP  2       ;18-bit controller -- may require mapped I/O
  000000                        M       DX$EBA  4       ;Buffer must be on even byte boundary
  000000                        M       DX$NCA  10      ;Do not do caching for this device
  000000                        M       DX$NMT  20      ;Do not allow mounts for this device
  000000                        M       DX$RAL  40      ;Require device to be allocated before use
  000000                        M       DX$MPH  100     ;Map the handler for this device
  000000                        M       DX$NHM  200     ;Do not map the handler for this device
  000000                        M       DX$IBH  400     ;Handler contains internal I/O buffer
  000000                        M       DX$NRD  1000    ;Do .SPFUN to tell handler about directory ops
  000000                        M       DX$NST  2000    ;Do not reload handler after SET done to it

                                ;---------------------------------------------------------------------------
                                ;  Logical Disk Status Flags
                                ;  The following flags are stored in the LDFLAG cell for a logical disk:
                                ;
  000000                        M       LD$RON  1       ;Read-only disk

```

```
     1                                                  .SBTTL  Device handler file format
     2                                          ;-----------------------------------------------------------------------------
     3                                          ;  The following offsets are to cells containing values in blocks 0 and 1
     4                                          ;  of handler files.
     5                                          ;
     6 000000                                   M       H.FET   02      ;Address of handler fetch code
     7 000000                                   M       H.LOAD  04      ;Address of handler load code
     8 000000                                   M       H.SIZ   52      ;Size of handler (bytes)
     9 000000                                   M       H.DVSZ  54      ;Number of 256-word blocks on device
    10 000000                                   M       H.DSTS  56      ;Device status flags
    11 000000                                   M       H.GEN   60      ;Sysgen options for handler
    12 000000                                   M       H.CSR   176     ;CSR address
    13 000000                                   M       H.INS   200     ;Installation routine
    14 000000                                   M       H.VEC   1000    ;Vector address
    15 000000                                   M       H.INT   1002    ;Pointer to interrupt service routine
    16 000000                                   M       H.PRI   1004    ;Priority (340)
    17 000000                                   M       H.LQE   1006    ;Pointer to last queue element
    18 000000                                   M       H.CQE   1010    ;Pointer to current queue element
    19 000000                                   M       H.ENT   1012    ;Handler entry point and HSR$xx flags
    20                                          ;
    21                                          ;  Handler service routine flags set in the low-order 5 bits of
    22                                          ;  the H.ENT word (the rest of the word is a NOP instruction).
    23                                          ;  (Note: This was added in RT-11 version 5.03)
    24                                          ;
    25 000000                                   M       HSR$FE  1       ;Handler Fetch service routine
    26 000000                                   M       HSR$RE  2       ;Handler Release service routine
    27 000000                                   M       HSR$LO  4       ;Handler Load service routine
    28 000000                                   M       HSR$UN  10      ;Handler Unload service routine
    29
    30                                          ;-----------------------------------------------------------------------------
    31                                          ;  The following table format is used to describe handler "SET" options.
    32                                          ;
    33 000000                                   RZ
    34 000000                                   RW      SH$VAL  1       ;Value passed in R3 to handler set routine
                 000000                                                                           SH$VAL=$AC
    35 000000                                   RW      SH$NAM  2       ;Rad50 value of option name
                 000002                                                                           SH$NAM=$AC
    36 000000                                   RB      SH$RTN  1       ;Offset to routine in handler for process set option
                 000006                                                                           SH$RTN=$AC
    37 000000                                   RB      SH$FLG  1       ;Control flags for option (See SO$xxx below)
                 000007                                                                           SH$FLG=$AC
    38 000000                                   RW      SH$$SZ  0       ;Size of option descriptor block
                 000010                                                                           SH$$SZ=$AC
    39                                          ;
    40                                          ;  Option flags stored in SH$FLG
    41                                          ;
    42 000000                                   M       SO$NO   200     ;"NO" allowed with option word
    43 000000                                   M       SO$NVL  100     ;Numeric parameter required with option
    44 000000                                   M       SO$OCT  40      ;Numeric parameter is in octal
    45
    46                                                  .SBTTL  Special device function codes
    47                                          ;-----------------------------------------------------------------------------
    48                                          ;  The following function codes are passed to the handler for directory
    49                                          ;  operations on "Special Devices" such as magnetic tapes and cassettes.
    50                                          ;  The function code is stored in the Q.FUNC cell of the I/O queue entry.
    51                                          ;
    52 000000                                   M       DF$CLS  1       ;Close file
```

```
     53 000000                             M       DF$DEL  2        ;Delete file
     54 000000                             M       DF$LOK  3        ;Lookup file
     55 000000                             M       DF$ENT  4        ;Enter file
     56 000000                             M       DF$REN  5        ;Rename file
```

```
      1                                                 .SBTTL  File directory entries
      2                                         ;-------------------------------------------------------------------------
      3                                         ;  Format of a file directory entry.
      4                                         ;
      5 000000                                  RZ
      6 000000                                  RW      FD$STA  1       ;Entry status word (see below)
               000000                                                                            FD$STA=$AC
      7 000000                                  RW      FD$NAM  3       ;File name and extension
               000002                                                                            FD$NAM=$AC
      8 000000                                  RW      FD$LEN  1       ;Allocated size of file
               000010                                                                            FD$LEN=$AC
      9 000000                                  RB      FD$JOB  1       ;Number of job using tentative file entry
               000012                                                                            FD$JOB=$AC
     10 000000                                  RB      FD$CHN  1       ;Number of channel using tentative file entry
               000013                                                                            FD$CHN=$AC
     11 000000                                  M       FD$TIM  FD$JOB  ;Time of file creation (3-second units)
     12 000000                                  RW      FD$DAT  1       ;Creation date of file
               000014                                                                            FD$DAT=$AC
     13 000000                                  RW      FD$OPT  0       ;Start of optional words
               000016                                                                            FD$OPT=$AC
     14 000000                                  RW      FD$$SZ  0       ;Size of directory entry
               000016                                                                            FD$$SZ=$AC
     15                                         ;
     16                                         ;  The following additional entries are allocated in directory entries
     17                                         ;  stored in the directory cache table.
     18                                         ;  They are not present in file directory entries stored on disk.
     19                                         ;  Note, if the size of this entry is changed, TSGEN must be changed.
     20                                         ;
     21 000000                                  RW      FC$CDX  1       ;Address of cached-device table entry for device
               000016                                                                            FC$CDX=$AC
     22 000000                                  RW      FC$LNK  1       ;Link to next entry in cache table
               000020                                                                            FC$LNK=$AC
     23 000000                                  M       FC$SBL  FD$JOB  ;Starting block # of file
     24 000000                                  RW      FC$$SZ  0       ;Size of cache table entry
               000022                                                                            FC$$SZ=$AC
     25                                         ;
     26                                         ;  Status flags stored in FD$STA.
     27                                         ;
     28 000000                                  M       FS$PRO  100000  ;File is "Protected"
     29 000000                                  M       FS$EOS  4000    ;End of directory segment marker
     30 000000                                  M       FS$PRM  2000    ;Permanent file entry
     31 000000                                  M       FS$EMP  1000    ;Empty file slot
     32 000000                                  M       FS$TEN  400     ;Tentative file entry
```

```
                                   ;-----------------------------------------------------------------------
                                   ;  Format of Directory Segment header.
                                   ;
000000                             RZ
000000                             RW      DH$NSG  1       ;Number of directory segments available
          000000                                                                   DH$NSG=$AC
000000                             RW      DH$NXT  1       ;Number of next segment in directory
          000002                                                                   DH$NXT=$AC
000000                             RW      DH$HIS  1       ;Number of highest segment currently in use
          000004                                                                   DH$HIS=$AC
000000                             RW      DH$NEB  1       ;Number of extra bytes per directory entry
          000006                                                                   DH$NEB=$AC
000000                             RW      DH$BLK  1       ;Block number where files in this segment begin
          000010                                                                   DH$BLK=$AC
000000                             RW      DH$$SZ  0       ;Size of Directory header
          000012                                                                   DH$$SZ=$AC
                                   ;
000000                             M       DH$$BS  6.      ;Block number where 1st directory segment is located
000000                             M       DH$$MS  31.     ;Maximum number of directory segments
000000                             M       DH$$LB  DH$$BS+<2*DH$$MS>-1 ;# of highest block that can have dir

                                           .SBTTL  Directory cache device table
                                   ;------------------------------------------------------------------------
                                   ;  A table with the following types of entries is allocated by TSGEN.
                                   ;  The table is used to indicate which devices are to have their
                                   ;  directory entries cached.
                                   ;  Note, if the size of this table is changed, TSGEN must be changed.
                                   ;
                                   ;  Number of bytes to use for flags to indicate which jobs have
                                   ;  mounted the device. This should be large enough to allow enough
                                   ;  bits equal to the maximum job number.
                                   ;
000000                             M       CD$$UB  8.      ;Number of bytes for user-mount flags (64 jobs)
                                   ;
000000                             RZ                      ;Start of cached-device table entry
000000                             RW      CD$DVU  1       ;Physical device # (low-order), Phys unit # (high byt)
          000000                                                                   CD$DVU=$AC
000000                             RW      CD$BAS  1       ;Base block number if this is a logical disk
          000002                                                                   CD$BAS=$AC
000000                             RW      CD$TOP  1       ;1 above top block if this is a logical disk
          000004                                                                   CD$TOP=$AC
000000                             RW      CD$NAM  2       ;File name if this is a logical disk
          000006                                                                   CD$NAM=$AC
000000                             RB      CD$JOB  CD$$UB  ;Bit flags indicating which users have device mounted
          000012                                                                   CD$JOB=$AC
000000                             RW      CD$$SZ  0       ;Size of entry
          000022                                                                   CD$$SZ=$AC
```

```
                                        .SBTTL  Assign table
                                ;-------------------------------------------------------------------------
                                ;  Format of table used to hold information for device assignments.
                                ;  ASNTBL is label for 1st entry in table, ASNEND is label past last entry.
                                ;
 000000                         RZ
 000000                         RW      AT$LOG  1       ;Logical device name
          000000                                                                AT$LOG=$AC
 000000                         RW      AT$SIZ  1       ;Size specified with file that is assigned to
          000002                                                                AT$SIZ=$AC
 000000                         RW      AT$DEV  1       ;Physical device name
          000004                                                                AT$DEV=$AC
 000000                         RW      AT$FIL  2       ;File name
          000006                                                                AT$FIL=$AC
 000000                         RW      AT$EXT  1       ;File extension
          000012                                                                AT$EXT=$AC
 000000                         RW      AT$$SZ  0       ;Size of table entry
          000014                                                                AT$$SZ=$AC

                                        .SBTTL  Access command table
                                ;-------------------------------------------------------------------------
                                ;  Format of table entry used to hold information about device-file
                                ;  specifications provided by the ACCESS command.
                                ;
 000000                         RZ
 000000                         RW      OF$FIL  3       ;File name and extension
          000000                                                                OF$FIL=$AC
 000000                         RB      OF$DEV  1       ;Device index number
          000006                                                                OF$DEV=$AC
 000000                         RB      OF$UNT  1       ;Unit number
          000007                                                                OF$UNT=$AC
 000000                         RB      OF$FLG  1       ;Control flags (see OT$xxx below)
          000010                                                                OF$FLG=$AC
 000000                         RW      OF$$SZ  0       ;Size of table entry
          000012                                                                OF$$SZ=$AC
                                ;
                                ;  Control flags stored in OF$FLG.
                                ;
 000000                         M       OT$RON  1       ;Read-only access allowed

                                        .SBTTL  Device allocation table
                                ;-------------------------------------------------------------------------
                                ;  The following table entries are used to keep track of which device
                                ;  units have been allocated by use of the ALLOCATE command.
                                ;  Note if the size of these table entries is changed, TSGEN must be changed.
                                ;
 000000                         RZ
 000000                         RW      AD$DVU  1       ;Physical device # (low-order), Phys unit # (high byt)
          000000                                                                AD$DVU=$AC
 000000                         RB      AD$JOB  1       ;Index number of job to which this device is allocated
          000002                                                                AD$JOB=$AC
 000000                         RB      AD$FLG  1       ;Control flags
          000003                                                                AD$FLG=$AC
 000000                         RW      AD$$SZ  0       ;Size of the control block
          000004                                                                AD$$SZ=$AC
```

```
                                        .SBTTL  Fork queue entry block
                                ;---------------------------------------------------------------------------
                                ;  Format of a fork queue entry.
                                ;
                                ;  Note: When change the size of the fork queue entry, TSGEN must also
                                ;  be altered to reflect the increase.
                                ;
000000                          RZ
000000                          RW      FQ$LNK   1      ;Link to next entry in queue
        000000                                                                          FQ$LNK=$AC
000000                          RW      FQ$RTN   1      ;Address of routine to call
        000002                                                                          FQ$RTN=$AC
000000                          RW      FQ$R5    1      ;Saved value of R5
        000004                                                                          FQ$R5=$AC
000000                          RW      FQ$R4    1      ;Saved value of R4
        000006                                                                          FQ$R4=$AC
000000                          RW      FQ$R3    1      ;Saved value of R3
        000010                                                                          FQ$R3=$AC
000000                          RW      FQ$R2    1      ;Saved value of R2
        000012                                                                          FQ$R2=$AC
000000                          RW      FQ$R1    1      ;Saved value of R1
        000014                                                                          FQ$R1=$AC
000000                          RW      FQ$UFB   1      ;Addr of FQ$RTN is user specified fork block
        000016                                                                          FQ$UFB=$AC
000000                          RW      FQ$PA5   1      ;Saved value of KPAR5
        000020                                                                          FQ$PA5=$AC
000000                          RW      FQ$PA6   1      ;Saved value of KPAR6
        000022                                                                          FQ$PA6=$AC
000000                          RB      FQ$PRI   1      ;Fork processing priority value
        000024                                                                          FQ$PRI=$AC
000000                          RW      FQ$$SZ   0      ;Size of a fork block
        000026                                                                          FQ$$SZ=$AC
```

```
     1                                                 .SBTTL  Installed program table
     2                                         ;-----------------------------------------------------------------------------
     3                                         ;   There is an entry of the following form for each INSTALLed program.
     4                                         ;
     5 000000                                  RZ
     6 000000                                  RW      II$NAM  4       ;Device, file-name, extension
               000000                                                                          II$NAM=$AC
     7 000000                                  RW      II$FLG  1       ;Run flags (see AF$xxx) below
               000010                                                                          II$FLG=$AC
     8 000000                                  RW      II$PRV  PVNPW   ;Privilege flags to enable when program is running
               000012                                                                          II$PRV=$AC
     9 000000                                  RW      II$NPV  PVNPW   ;Privilege flags to disable when program is running
               000016                                                                          II$NPV=$AC
    10 000000                                  RW      II$$SZ  0       ;Size of install table entry
               000022                                                                          II$$SZ=$AC
    11                                         ;
    12                                         ;   Flags stored in II$FLG
    13                                         ;
    14 000000                                  M       AF$NOW  1               ;Non-wait TT input
    15 000000                                  M       AF$HIE  2               ;High efficiency mode
    16 000000                                  M       AF$NOI  4               ;Non-interactive execution
    17 000000                                  M       AF$IOP  10              ;Map user PAR 7 to I/O page
    18 000000                                  M       AF$SCA  20              ;Single character activation
    19 000000                                  M       AF$MEM  40              ;Lock program in low memory
    20 000000                                  M       AF$PLK  100             ;Lock program to line (RUN/LOCK)
    21 000000                                  M       AF$DBG  200             ;Run program with debugger
    22 000000                                  M       AF$BYA  400             ;Bypass user ASSIGNs
    23 000000                                  M       AF$TPO  1000            ;Transparent output
    24 000000                                  M       AF$DUP  2000            ;DUP program special handling
    25 000000                                  M       AF$IND  4000            ;IND program special handling
    26 000000                                  M       AF$UCL  10000           ;TSXUCL program special handling
    27 000000                                  M       AF$SET  20000           ;SETUP program special handling
    28 000000                                  M       AF$CCA  40000           ;Suppress control-C abort
    29 000000                                  M       AF$NPW  100000          ;No process windowing while running
```

```
                                   .SBTTL  Memory allocation table values
                               ;-----------------------------------------------------------------------------
                               ;  The following values are stored in the memory allocation table
                               ;  to indicate portion of memory that are being used by the system.
                               ;  Memory allocation values for system use must be negative.
                               ;  A zero value indicates the memory area is free.
                               ;  A positive value indicates the memory area is being used by the
                               ;  job whose index number is the value.
                               ;
   000000                      M       MA$SYS  -1      ;Operating system itself
   000000                      M       MA$SRT  -2      ;Shared run-time system
   000000                      M       MA$RGN  -3      ;Shared global PLAS region
```

```
                         .SBTTL  PRO-350 Related Values
                 ;-----------------------------------------------------------------------------
                 ;   Values related to the PRO-350 system clock.
                 ;
                 ;   Registers and vectors
                 ;
000000           M       PCCSEC   173000          ;Seconds value register
000000           M       PCCSAL   173002          ;Seconds alarm register
000000           M       PCCMIN   173004          ;Minutes value register
000000           M       PCCMAL   173006          ;Minutes alarm register
000000           M       PCCHRS   173010          ;Hours value register
000000           M       PCCHAL   173012          ;Hours alarm register
000000           M       PCCDAY   173014          ;Day value register
000000           M       PCCDAT   173016          ;Date of month
000000           M       PCCMON   173020          ;Month value register
000000           M       PCCYR    173022          ;Year value register
000000           M       PCCCR0   173024          ;CSR0
000000           M       PCCCR1   173026          ;CSR1
000000           M       PCCCR2   173030          ;CSR2
000000           M       PCCCR3   173032          ;CSR3
                 ;
000000           M       PCCVEC   100             ;Vector address
                 ;
                 ;   Flags in CSR2
                 ;
000000           M       PC$UF    20              ;Update ended interrupt flag
000000           M       PC$AF    40              ;Alarm interrupt flag
000000           M       PC$PF    100             ;Periodic interrupt flag
000000           M       PC$IRQ   200             ;Interrupt request flag
```

```
                                 .SBTTL  Spooling Control Tables
                        ;-------------------------------------------------------------------------------
                        ;  Format of a Spool File Control Block (SFCB).
                        ;  There is one SFCB for each spool file.
                        ;  Warning: if the SFCB definition is changed here, it must also be
                        ;  changed in TSGEN.
                        ;
  000000                RZ
  000000                RB       SFUSER  1       ;Number of user writing to this file
          000000                                                                  SFUSER=$AC
  000000                RB       SFFLAG  1       ;Control flags (see below)
          000001                                                                  SFFLAG=$AC
  000000                RW       SFCHAN  1       ;Number of channel opened to this file
          000002                                                                  SFCHAN=$AC
  000000                RW       SFSDCB  1       ;SDCB wanted by this file
          000004                                                                  SFSDCB=$AC
  000000                RW       SFNMBL  1       ;Number of blocks for file on disk
          000006                                                                  SFNMBL=$AC
  000000                RW       SFSTRT  1       ;Block number of start of file on disk
          000010                                                                  SFSTRT=$AC
  000000                RW       SFFLNK  1       ;Disk address where next block goes
          000012                                                                  SFFLNK=$AC
  000000                RW       SFFORM  3       ;Form name (6 characters)
          000014                                                                  SFFORM=$AC
  000000                RW       SFFILE  2       ;File name (Rad50)
          000022                                                                  SFFILE=$AC
  000000                RW       SFID    1       ;File ID
          000026                                                                  SFID=$AC
  000000                RW       SFQLNK  1       ;Queue link of files for same device
          000030                                                                  SFQLNK=$AC
  000000                RW       SFCBSZ  0       ;Size of spool file control block
          000032                                                                  SFCBSZ=$AC
                        ;
                        ;  Control flags stored in SFFLAG.
                        ;
  000000                M        SF$BSY  1       ;File is being processed by spooler
  000000                M        SF$BN1  2       ;Make 1st write be block # 1 rather than 0
  000000                M        SF$1ST  4       ;First write has been done
  000000                M        SF$HLD  10      ;Don't start output till channel closed
  000000                M        SF$DEL  20      ;Delete this spool file
```

```
      1                                  ;-----------------------------------------------------------------------------
      2                                  ;   Format of Spooled Device Control Block (SDCB).
      3                                  ;   There is one SDCB for each spooled device.
      4                                  ;   Warning: if the definition of a SDCB is changed here, it also must be
      5                                  ;   changed in TSGEN.
      6                                  ;
      7 000000                           RZ
      8 000000                           RW      SDCHAN  5       ;System channel block for spooled device
                  000000                                                                 SDCHAN=$AC
      9 000000                           RW      SDSFCB  1       ;Current SFCB being processed by spooler
                  000012                                                                 SDSFCB=$AC
     10 000000                           RW      SDFLNK  1       ;Disk address of next block in file
                  000014                                                                 SDFLNK=$AC
     11 000000                           RW      SDBUF1  1       ;Buffer being written by spooler
                  000016                                                                 SDBUF1=$AC
     12 000000                           RW      SDBUF2  1       ;Buffer being read into
                  000020                                                                 SDBUF2=$AC
     13 000000                           RW      SDUSER  1       ;Number of user device is reserved for
                  000022                                                                 SDUSER=$AC
     14 000000                           RW      SDNAME  1       ;RAD50 name of spooled device
                  000024                                                                 SDNAME=$AC
     15 000000                           RW      SDDVU   1       ;Spooled device index (low byte), unit # (high byte)
                  000026                                                                 SDDVU=$AC
     16 000000                           RW      SDWLST  1       ;Queue flink if waiting for a buffer
                  000030                                                                 SDWLST=$AC
     17 000000                           RW      SDBLK   1       ;Block number for next spooled device write
                  000032                                                                 SDBLK=$AC
     18 000000                           RW      SDFHD   1       ;Pointer to first SFCB waiting for this device
                  000034                                                                 SDFHD=$AC
     19 000000                           RW      SDFORM  3       ;Current form name (6 chars)
                  000036                                                                 SDFORM=$AC
     20 000000                           RB      SDANAM  3       ;ASCII name of spooled device (only 3 chars used)
                  000044                                                                 SDANAM=$AC
     21 000000                           RW      SDFLAG  1       ;Control flags (see below)
                  000050                                                                 SDFLAG=$AC
     22 000000                           RW      SDSKIP  1       ;Number of blocks to skip
                  000052                                                                 SDSKIP=$AC
     23 000000                           RW      SDFRBL  1       ;Number of free private spool blocks for device
                  000054                                                                 SDFRBL=$AC
     24 000000                           RW      SDBU    0       ;Backup save block numbers (must be last)
                  000056                                                                 SDBU=$AC
     25                                  ;
     26                                  ;   Control flags in SDFLAG.
     27                                  ;
     28 000000                           M       SD$INR  1       ;Read from spool file in progress
     29 000000                           M       SD$BWT  2       ;Spooler is waiting for a buffer
     30 000000                           M       SD$DEL  4       ;Delete current file
     31 000000                           M       SD$WFM  10      ;Waiting for form mount
     32 000000                           M       SD$FLK  20      ;Form is locked
     33 000000                           M       SD$HLD  40      ;Don't start output till channel is closed
     34 000000                           M       SD$SNG  100     ;Single file mode
     35 000000                           M       SD$SMS  200     ;Form mount message sent
     36 000000                           M       SD$BAK  400     ;Backup has been requested
     37 000000                           M       SD$CLR  SD$DEL!SD$WFM!SD$SMS!SD$BAK
```

```
                                          .SBTTL  Accounting file format
                                 ;------------------------------------------------------------------------------
                                 ;   The following items describe the format of an accounting file record.
                                 ;
 000000                          RZ
 000000                          RB       AR$PRJ  2.       ;Project number
          000000                                                                   AR$PRJ=$AC
 000000                          RB       AR$PRG  2.       ;Programmer number
          000002                                                                   AR$PRG=$AC
 000000                          RB       AR$PWD  8.       ;Password
          000004                                                                   AR$PWD=$AC
 000000                          RB       AR$PRV  2.       ;Privilege flags
          000014                                                                   AR$PRV=$AC
 000000                          RB       AR$SUF  16.      ;Start-up command file
          000016                                                                   AR$SUF=$AC
 000000                          RB       AR$CON  2.       ;Connect time (minutes)
          000036                                                                   AR$CON=$AC
 000000                          RB       AR$CNT  2.       ;Number of sessions
          000040                                                                   AR$CNT=$AC
 000000                          RB       AR$CPH  2.       ;High-order CPU time
          000042                                                                   AR$CPH=$AC
 000000                          RB       AR$CPL  2.       ;Low-order CPU time
          000044                                                                   AR$CPL=$AC
 000000                          RB       AR$UNM  12.      ;User name
          000046                                                                   AR$UNM=$AC
 000000                          RB       AR$PRI  1.       ;Maximum authorized priority
          000062                                                                   AR$PRI=$AC
 000000                          RB       AR$DMY  13.      ;Unused (reserved)
          000063                                                                   AR$DMY=$AC
 000000                          RW       AR$$SZ  0        ;Size of authorization record
          000100                                                                   AR$$SZ=$AC
                                 ;
 000000                          M        ARNRPB  512./AR$$SZ ;Number of authorization records per block
```

```
                                 .SBTTL  Log file control flags
                         ;-----------------------------------------------------------------------
                         ;  Control flags stored in LOGFLG used to control the operation of
                         ;  the log file.
                         ;
  000000                 M       LF$OPN  1       ;Log file is open
  000000                 M       LF$WRT  2       ;Enable writes to log file
  000000                 M       LF$IN   4       ;Log input (received) characters
  000000                 M       LF$OUT  10      ;Log output (transmitted) characters
```

```
      1                                                 .SBTTL  Shared file control tables
      2                                         ;-----------------------------------------------------------------------------
      3                                         ;  Shared file Channel Descriptor Block (CDB).
      4                                         ;  There is one active CDB for each channel opened to a shared file.
      5                                         ;  Free list head = FCFREE.
      6                                         ;
      7 000000                                  RZ
      8 000000                                  RB      FC$CHN  1       ;Channel number
                000000                                                                          FC$CHN=$AC
      9 000000                                  RB      FC$UN   1       ;User number
                000001                                                                          FC$UN=$AC
     10 000000                                  RB      FC$FLG  1       ;Control flags (see below)
                000002                                                                          FC$FLG=$AC
     11 000000                                  RB      FC$NLB  1       ;Number of blocks currently locked by channel
                000003                                                                          FC$NLB=$AC
     12 000000                                  RW      FC$ACC  1       ;Access protection flags
                000004                                                                          FC$ACC=$AC
     13 000000                                  RW      FC$FDB  2       ;Pointer to FDB for file
                000006                                                                          FC$FDB=$AC
     14 000000                                  RW      FC$FLK  2       ;Flink to next CDB for this file
                000012                                                                          FC$FLK=$AC
     15 000000                                  RW      FC$CLK  2       ;Flink to next CDB for this user
                000016                                                                          FC$CLK=$AC
     16 000000                                  RW      FC$LBN  0       ;Start of table of locked block numbers
                000022                                                                          FC$LBN=$AC
     17                                         ;
     18 000000                                  RW      FC$$SS  0       ;Size of block
                000022                                                                          FC$$SS=$AC
     19                                         ;
     20                                         ;  Control flags found in FC$FLG.
     21                                         ;
     22 000000                                  M       FL$ACT  1       ;Some other user has written to this file
     23 000000                                  M       FL$EFL  2       ;Entire file is locked
     24 000000                                  M       FL$NDC  4       ;Suppress data caching
     25 000000                                  M       FL$SPN  10      ;CDB is suspended (because of save status)
     1                              ;-----------------------------------------------------------------------
     2                              ;  Format of Shared File Descriptor Block (FDB).
     3                              ;  There is one active FDB for each shared file that is open.
     4                              ;  Free head = FFFREE; Active list head = FFHEAD.
     5                              ;
     6 000000                       RZ
     7 000000                       RW      FF$FID  2       ;File identification
               000000                                                          FF$FID=$AC
     8 000000                       RW      FF$CDB  2       ;Pointer to first CDB for this file
               000004                                                          FF$CDB=$AC
     9 000000                       RW      FF$DCD  2       ;Pointer to first data cache descriptor for this file
               000010                                                          FF$DCD=$AC
    10 000000                       RW      FF$FWD  2       ;Pointer to first wait block for this file
               000014                                                          FF$FWD=$AC
    11 000000                       RW      FF$NLB  1       ;Number of blocks currently locked
               000020                                                          FF$NLB=$AC
    12 000000                       RB      FF$FLG  1       ;Status flags (see below)
               000022                                                          FF$FLG=$AC
    13 000000                       RW      FF$FLK  2       ;Flink to next active FDB
               000024                                                          FF$FLK=$AC
    14 000000                       RW      FF$$SZ  0       ;Size of FDB
               000030                                                          FF$$SZ=$AC
    15                              ;
    16                              ;  Status flags stored in FF$FLG.
    17                              ;
    18 000000                       M       FT$EFL  1       ;Entire file locked
    19
    20                              ;---------------------------------------------------------------------
    21                              ;  Format of shared file wait queue element.
    22                              ;  There is one entry for each user who is waiting for a locked block.
    23                              ;  Free head = FWFREE.
    24                              ;
    25 000000                       RZ
    26 000000                       RW      FW$DBN  1       ;Block number we are waiting for
               000000                                                          FW$DBN=$AC
    27 000000                       RW      FW$UN   1       ;User number
               000002                                                          FW$UN=$AC
    28 000000                       RW      FW$WLK  2       ;Flink to next wait element for this file
               000004                                                          FW$WLK=$AC
    29 000000                       RW      FW$$SZ  0       ;Size of wait queue element
               000010                                                          FW$$SZ=$AC
```

```
                                  ;-------------------------------------------------------------------------------
                                  ;  Format of a data cache descriptor block
                                  ;  There is one of these descriptor blocks for each data cache buffer.
                                  ;  (Note: the size of these descriptor blocks is assumed in TSGEN)
                                  ;
  000000                          RZ
  000000                          RW      DC$NXT  2       ;Pointer to next DCD
          000000                                                                        DC$NXT=$AC
  000000                          RW      DC$FDB  2       ;Addr of FDB for shared file assoc with this entry
          000004                                                                        DC$FDB=$AC
  000000                          RW      DC$BLK  1       ;File block # whose data is in this cache buffer
          000010                                                                        DC$BLK=$AC
  000000                          RW      DC$USE  1       ;Use counter
          000012                                                                        DC$USE=$AC
  000000                          RW      DC$LNK  2       ;Link to next cache descriptor for this file
          000014                                                                        DC$LNK=$AC
  000000                          RW      DC$PAR  1       ;Map PAR address for this cache buffer
          000020                                                                        DC$PAR=$AC
  000000                          RW      DC$$SZ  0       ;Size of cache descriptor
          000022                                                                        DC$$SZ=$AC
```

```
                                        .SBTTL  Message communication control tables
                                ;-----------------------------------------------------------------------------------
                                ;  Offsets into EMT block for message EMT's.
                                ;
000000                          RZ
000000                          RW      EB$XX   1       ;Not used
          000000                                                                      EB$XX=$AC
000000                          RW      EB$NAM  1       ;Pointer to channel name string
          000002                                                                      EB$NAM=$AC
000000                          RW      EB$BUF  1       ;Address of user's buffer
          000004                                                                      EB$BUF=$AC
000000                          RW      EB$SIZ  1       ;Message byte size
          000006                                                                      EB$SIZ=$AC
000000                          RW      EB$RTN  1       ;Address of completion routine
          000010                                                                      EB$RTN=$AC
                                ;
                                ;  Format of message control block
                                ;
000000                          RZ
000000                          RW      MB$FLK  1       ;Link to next message control block
          000000                                                                      MB$FLK=$AC
000000                          RW      MB$NAM  3       ;Name of message channel (6 characters)
          000002                                                                      MB$NAM=$AC
000000                          RW      MB$BUF  1       ;Pointer to 1st pending message text block
          000010                                                                      MB$BUF=$AC
000000                          RW      MB$REQ  1       ;Pointer to 1st pending message request block
          000012                                                                      MB$REQ=$AC
000000                          RW      MB$$SZ  0       ;Size of message control block
          000014                                                                      MB$$SZ=$AC
                                ;
                                ;  Format of a message request block
                                ;
000000                          RZ
000000                          RW      MR$LNK  1       ;Link to next message request block
          000000                                                                      MR$LNK=$AC
000000                          RW      MR$UBA  1       ;Address of user's buffer area
          000002                                                                      MR$UBA=$AC
000000                          RW      MR$UBS  1       ;Size of user's buffer area
          000004                                                                      MR$UBS=$AC
000000                          RW      MR$RTN  1       ;Address of user's completion routine
          000006                                                                      MR$RTN=$AC
000000                          RW      MR$BUF  1       ;Pointer to message text buffer to be passed
          000010                                                                      MR$BUF=$AC
000000                          RB      MR$JOB  1       ;Job index number
          000012                                                                      MR$JOB=$AC
000000                          RW      MR$$SZ  0       ;Size of block
          000014                                                                      MR$$SZ=$AC
                                ;
                                ;  Format of a message text buffer
                                ;
000000                          RZ
000000                          RW      MU$FLK  1       ;Link to next buffer
          000000                                                                      MU$FLK=$AC
000000                          RW      MU$SIZ  1       ;Message size (bytes)
          000002                                                                      MU$SIZ=$AC
000000                          RB      MU$JOB  1       ;Job index number of job that sent message
          000004                                                                      MU$JOB=$AC
```

```
     38 000000                             RW       MU$TXT  0        ;Start of message text
                  000006                                                                      MU$TXT=$AC
```

```
                               .SBTTL  Generic data set control and status flags
                          ;-------------------------------------------------------------------------------
                          ;  The following generic status and control flags are used to check the
                          ;  status of data sets and perform control operations.
                          ;
000000                    M       MS$RNG  1       ;Phone is ringing
000000                    M       MS$CAR  2       ;Carrier is detected
000000                    M       MS$DTR  4       ;Data Terminal Ready is asserted
000000                    M       MS$BRK  10      ;Transmit a break


                               .SBTTL  DL11 Control and Status Registers
                          ;-------------------------------------------------------------------------------
                          ;  DL11 Line interface control and status flags.
                          ;
                          ;  Receiver status register
                          ;
000000                    M       STATCH  100000  ;Data set status change
000000                    M       RING    40000   ;Ring indication
000000                    M       SNDCLR  20000   ;Clear to send
000000                    M       CARDET  10000   ;Carrier detect
000000                    M       RCVACT  4000    ;Receiver is active
000000                    M       RCVDON  200     ;Receive done
000000                    M       RCVINT  100     ;Receiver interrupt enable
000000                    M       DSINT   40      ;Data set interrupt enable
000000                    M       REQSND  4       ;Request to send
000000                    M       TRMRDY  2       ;Data terminal ready
000000                    M       RDINT   RCVINT
                          ;
                          ;  Receiver data buffer register
                          ;
000000                    M       RBERR   100000  ;Error in input
000000                    M       OVRRUN  40000   ;Character overrun
000000                    M       FRMERR  20000   ;Framing error
000000                    M       RCVPAR  10000   ;Receive parity error
                          ;
                          ;  Transmitter status register
                          ;
000000                    M       TRRDY   200     ;Transmitter ready
000000                    M       TRINT   100     ;Transmitter interrupt enable
000000                    M       TRBRK   1       ;Transmit a break
```

```
                                         .SBTTL  DZ11 Control and Status Registers
                                 ;---------------------------------------------------------------------------
                                 ;   DZ11 Mux flags
                                 ;
                                 ;
                                 ;   Control and Status Register (CSR).
                                 ;
  000000                         M       TRDY     100000  ;Transmitter ready
  000000                         M       TIE      40000   ;Transmitter interrupt enable
  000000                         M       TLINE    3400    ;Transmitter line number
  000000                         M       RDONE    200     ;Receiver done
  000000                         M       RIE      100     ;Receiver interrupt enable
  000000                         M       MSE      40      ;Master scan enable
  000000                         M       ZCLR     20      ;Master clear
  000000                         M       INTMX1   TIE!RIE!MSE ;Initial flags for DZ11
                                 ;
                                 ;   Receiver Buffer Register (RBUF).
                                 ;
  000000                         M       DATVAL   100000  ;Data valie
  000000                         M       ZFRMER   20000   ;Framing error
  000000                         M       DZERR    70000   ;DZ11 input error flags
  000000                         M       RLINE    3400    ;Receive line number
                                 ;
                                 ;   Line parameter register (LPR)
                                 ;
  000000                         M       DZ$PAR   100     ;Enable parity
  000000                         M       DZ$ODD   200     ;Odd parity
  000000                         M       DZ$LEN   30      ;Character length code
  000000                         M       DZ$7BT   20      ;7 bit characters
  000000                         M       DZ$8BT   30      ;8 bit characters
```

```
                                             .SBTTL  DH11 Control and Status Registers
                                     ;-----------------------------------------------------------------------
                                     ;  DH11 Control and Status Registers
                                     ;
                                     ;  Status flags stored in the DH11 System Control Register (MH$SCR)
                                     ;
        000000                       M       HF$TI    100000  ;Transmitter interrupt flag
        000000                       M       HF$SI    40000   ;Storage interrupt flag
        000000                       M       HF$TIE   20000   ;Transmitter interrupt enable flag
        000000                       M       HF$SIE   10000   ;Storage interrupt enable flag
        000000                       M       HF$MC    4000    ;Master clear
        000000                       M       HF$NXM   2000    ;Non-existant memory flag
        000000                       M       HF$MM    1000    ;Mainentnance mode
        000000                       M       HF$CNI   400     ;Clear non-existant memory interrupt flag
        000000                       M       HF$RI    200     ;Receiver interrupt flag
        000000                       M       HF$RIE   100     ;Receiver interrupt enable flag
        000000                       M       HF$LIN   17      ;Line number field mask
                                     ;
                                     ;  Status flags stored in DH11 Received Character Register (MH$RCR)
                                     ;
        000000                       M       HF$VDP   100000  ;Valid Data Character Present flag
        000000                       M       HF$DO    40000   ;Data overrun
        000000                       M       HF$FE    20000   ;Framing error
        000000                       M       HF$PE    10000   ;Parity error
                                     ;
                                     ;  Status flags stored in DH11 Line Parameter Register (MH$LPR)
                                     ;
        000000                       M       HF$AEE   100000  ;Auto echo enable
        000000                       M       HF$HD    40000   ;Half-duplex
        000000                       M       HF$ODD   40      ;Odd parity
        000000                       M       HF$PAR   20      ;Parity enable
        000000                       M       HF$TSB   4       ;Two stop bits
        000000                       M       HF$LEN   3       ;Character length field
        000000                       M       HF$7BT   2       ;7 bit characters
        000000                       M       HF$8BT   3       ;8 bit characters
                                     ;
                                     ;  Status flags stored in DM11 Control Status Register (DM$CSR)
                                     ;
        000000                       M       MF$CS    4000    ;Clear scanner
        000000                       M       MF$CM    2000    ;Clear multiplexer
        000000                       M       MF$STP   400     ;Step to next line
        000000                       M       MF$DON   200     ;Done
        000000                       M       MF$IE    100     ;Interrupt enable
        000000                       M       MF$SE    40      ;Scanner enable
        000000                       M       MF$BSY   20      ;Busy
        000000                       M       MF$LIN   17      ;Line number field mask
                                     ;
                                     ;  Status flags stored in DM11 Line Status Register (DM$LSR)
                                     ;
        000000                       M       MF$RNG   200     ;Ring signal
        000000                       M       MF$CAR   100     ;Carrier detect
        000000                       M       MF$CTS   40      ;Clear to send
        000000                       M       MF$SR    20      ;Secondary receive
        000000                       M       MF$ST    10      ;Secondary transmit
        000000                       M       MF$RTS   4       ;Request to send
        000000                       M       MF$DTR   2       ;Data terminal ready
        000000                       M       MF$LE    1       ;Line enable
```

```
                                      .SBTTL  DHV11 Control and Status Registers
                                ;-----------------------------------------------------------------------
                                ;  Status and control flags for DHV11 registers
                                ;
                                ;  Status flags stored in the DHV11 Control Status Register (VH$CSR)
                                ;
000000                          M       VF$TR   100000  ;Transmitter ready for another character
000000                          M       VF$TIE  40000   ;Transmitter interrupt enable
000000                          M       VF$DF   20000   ;Diagnostics failure
000000                          M       VF$TDE  10000   ;Transmit DMA error
000000                          M       VF$XLN  3400    ;Transmitter interrupt line # field
000000                          M       VF$RDA  200     ;Receive data available
000000                          M       VF$RIE  100     ;Receive interrupt enable
000000                          M       VF$MR   40      ;Master reset
000000                          M       VF$LIN  17      ;Line number select field
                                ;
                                ;  Status flags stored in the DHV11 Data Buffer Register (VH$DBR)
                                ;  The following flags are in the receiver buffer register which is accessed
                                ;  when VH$DBR is read.
                                ;
000000                          M       VF$DV   100000  ;Data valid
000000                          M       VF$OE   40000   ;Data overrun error
000000                          M       VF$FE   20000   ;Framing error
000000                          M       VF$PER  10000   ;Parity error
                                ;
                                ;  The following status flags are used with the transmitter buffer register
                                ;  which is accessed when VH$DBR is written.
                                ;
000000                          M       VF$TDV  100000  ;Transmit data valid
                                ;
                                ;  Status flags stored in the DHV11 Line Parameter Register (VH$LPR)
                                ;
000000                          M       VF$LEN  30      ;Field for character length
000000                          M       VF$7BT  20      ;7 bit characters
000000                          M       VF$8BT  30      ;8 bit characters
000000                          M       VF$PAR  40      ;Parity enable
000000                          M       VF$EVN  100     ;Even parity
000000                          M       VF$SC   200     ;Stop code
                                ;
                                ;  Status flags stored in the DHV11 Line Status Register (VH$LSR)
                                ;
000000                          M       VF$DSR  100000  ;Data set ready
000000                          M       VF$RNG  20000   ;Ring indication
000000                          M       VF$DCD  10000   ;Carrier detected
000000                          M       VF$CTS  4000    ;Clear to send
                                ;
                                ;  Status flags stored in the DHV11 Line Control Register (VH$LCR)
                                ;
000000                          M       VF$RTS  10000   ;Request to send
000000                          M       VF$DTR  1000    ;Data terminal ready
000000                          M       VF$LT   400     ;Link type (1=>Modem RTS/CTS protocol)
000000                          M       VF$XOF  40      ;Force transmission of XOFF
000000                          M       VF$OFC  20      ;Do automatic output flow control
000000                          M       VF$BC   10      ;Break control
000000                          M       VF$RE   4       ;Receiver enable
000000                          M       VF$IFC  2       ;Automatic flow control
000000                          M       VF$ABT  1       ;DMA transfer abort
```

```
                                        ;
                                        ;  Status flags stored in the DHV11 transmitter buffer addr reg 2
                                        ;
   000000                               M       VF$TEN  100000  ;Enable transmitter
   000000                               M       VF$TGO  200     ;Start DMA transmission

```

```
                                        .SBTTL  Line Speed Codes
                                ;-------------------------------------------------------------------------
                                ;  The following symbolic values are used to encode the line speed codes.
                                ;
 000000                         M       S50     0       ;50
 000000                         M       S75     1       ;75
 000000                         M       S110    2       ;110
 000000                         M       S134.5  3       ;134.5
 000000                         M       S150    4       ;150
 000000                         M       S300    5       ;300
 000000                         M       S600    6       ;600
 000000                         M       S1200   7       ;1200
 000000                         M       S1800   10      ;1800
 000000                         M       S2000   11      ;2000
 000000                         M       S2400   12      ;2400
 000000                         M       S3600   13      ;3600
 000000                         M       S4800   14      ;4800
 000000                         M       S7200   15      ;7200
 000000                         M       S9600   16      ;9600
 000000                         M       S19200  17      ;19200
                                ;
                                ;  The following flags are used to encode the character length, parity
                                ;  on/off, and even/odd status for a line.
                                ;
 000000                         M       LP$SPD  17      ;Bits used to encode speed (see above for values)
 000000                         M       LP$7BT  40      ;0==>8 bit characters, 1==>7 bit characters
 000000                         M       LP$PAR  100     ;0==>No parity, 1==>Enable parity
 000000                         M       LP$ODD  200     ;0==>Even parity, 1==>Odd parity
```

```
                                      .SBTTL  Communication Line (CL) Handler Flags
                                ;---------------------------------------------------------------------
                                ;  The following flags relate to the CL handler
                                ;
                                ;  Option flags stored in CL$OPT table
                                ;
000000                          M       CO$FF    1                  ;Device supports hardware form feeds
000000                          M       CO$TAB   2                  ;Device supports hardware tabs
000000                          M       CO$LC    4                  ;Allow lower-case characters to be sent
000000                          M       CO$LFO   10                 ;Transmit line-feed chars to device
000000                          M       CO$LFI   20                 ;Accept line feed characters coming in
000000                          M       CO$FFO   40                 ;Send form feed on write of block 0
000000                          M       CO$BNO   100                ;Binary output mode
000000                          M       CO$BNI   200                ;Binary input mode
000000                          M       CO$CR    400                ;Allow carriage return to be sent
000000                          M       CO$CTL   1000               ;Allow control characters to be sent
000000                          M       CO$DTR   2000               ;Raise Data Terminal Ready (DTR)
000000                          M       CO$8BT   4000               ;Eight bit character support
                                ;
000000                          M       CO$DEF   CO$LC!CO$LFO!CO$LFI!CO$CR!CO$CTL ;Default option flags
                                ;
                                ;  Status flags stored in CL$STA table
                                ;
000000                          M       CM$WRT   2                  ;A write operation has been done to this unit
000000                          M       CM$EFP   4                  ;Currently doing end-of-file output processing
000000                          M       CM$CRL   10                 ;Carriage return was last char transmitted
000000                          M       CM$TBS   20                 ;Doing tab expansion simulation
000000                          M       CM$EOF   40                 ;Return end-of-file on next read
000000                          M       CM$ON    100                ;Line is turned on
000000                          M       CM$BRK   200                ;Currently transmitting a break
000000                          M       CM$FFS   400                ;Doing form-feed simulation
000000                          M       CM$IRG   1000               ;IRINGG routine active for this unit
000000                          M       CM$ORP   2000               ;ORINGP routine active for this unit
000000                          M       CM$DTR   4000               ;Data Terminal Ready has been asserted
000000                          M       CM$MCC   10000              ;Next char is modem control or literal char
000000                          M       CM$FFI   20000              ;Ignore FF if it immediately follows a skip
                                ;
                                ;  Status flags returned by SPFUN 204 (get CL status)
                                ;
000000                          M       XL$XFX   1                  ;XOFF has been transmitted
000000                          M       XL$XFR   2                  ;XOFF has been received
000000                          M       XL$CTS   4                  ;CTS is asserted
000000                          M       XL$CD    10                 ;Carrier is detected
000000                          M       XL$RI    20                 ;Ring is detected
                                ;
                                ;  Special function code values for CL handler
                                ;
000000                          M       CLSFCH   201                ;Clear handler status
000000                          M       CLSFBC   202                ;Break transmission control
000000                          M       CLSFRB   203                ;Read with byte count
000000                          M       CLSFHS   204                ;Get handler status
000000                          M       CLSFDL   205                ;Deactivate line
000000                          M       CLSFSO   250                ;Set selected option flags
000000                          M       CLSFCO   251                ;Clear selected option flags
000000                          M       CLSFSL   252                ;Set page length
000000                          M       CLSFSS   253                ;Set number of lines to skip
000000                          M       CLSFSW   254                ;Set line width
```

```
     58 000000                          M       CLSFMS  255             ;Get data set status code
     59 000000                          M       CLSFSP  256             ;Set receive/transmit speed
     60 000000                          M       CLSFAB  257             ;Abort all pending reads and writes
     61 000000                          M       CLSFRL  260             ;Read line with byte count
     62 000000                          M       CLSFIC  261             ;Get # pending input bytes
     63 000000                          M       CLSFOC  262             ;Get # pending output bytes
     64 000000                          M       CLSFWB  263             ;Write with byte count
     65 000000                          M       CLSFEP  264             ;Set end-of-file output control
     66 000000                          M       CLSFRS  265             ;Reset status of CL unit
     67 000000                          M       CLSFGO  266             ;Get CL options and settings
     1                                  .SBTTL  Memory Management values
     2                          ;-----------------------------------------------------------------------
     3                          ;  Values related to memory management
     4                          ;
     5                          ;  Status and control registers
     6                          ;
     7                          ;  Kernel-mode page base registers
     8                          ;
     9 000000                   M       KPAR0   172340
    10 000000                   M       KPAR1   KPAR0+2
    11 000000                   M       KPAR2   KPAR0+4
    12 000000                   M       KPAR3   KPAR0+6
    13 000000                   M       KPAR4   KPAR0+10
    14 000000                   M       KPAR5   KPAR0+12
    15 000000                   M       KPAR6   KPAR0+14
    16 000000                   M       KPAR7   KPAR0+16
    17                          ;
    18                          ;  Kernel-mode page descriptor registers
    19                          ;
    20 000000                   M       KPDR0   172300
    21 000000                   M       KPDR1   KPDR0+2
    22 000000                   M       KPDR2   KPDR0+4
    23 000000                   M       KPDR3   KPDR0+6
    24 000000                   M       KPDR4   KPDR0+10
    25 000000                   M       KPDR5   KPDR0+12
    26 000000                   M       KPDR6   KPDR0+14
    27 000000                   M       KPDR7   KPDR0+16
    28                          ;
    29                          ;  User-mode page address registers
    30                          ;
    31 000000                   M       UPAR0   177640
    32 000000                   M       UPAR1   UPAR0+2
    33 000000                   M       UPAR2   UPAR0+4
    34 000000                   M       UPAR3   UPAR0+6
    35 000000                   M       UPAR4   UPAR0+10
    36 000000                   M       UPAR5   UPAR0+12
    37 000000                   M       UPAR6   UPAR0+14
    38 000000                   M       UPAR7   UPAR0+16
    39                          ;
    40                          ;  User-mode page descriptor registers
    41                          ;
    42 000000                   M       UPDR0   177600
    43 000000                   M       UPDR1   UPDR0+2
    44 000000                   M       UPDR2   UPDR0+4
    45 000000                   M       UPDR3   UPDR0+6
    46 000000                   M       UPDR4   UPDR0+10
    47 000000                   M       UPDR5   UPDR0+12
    48 000000                   M       UPDR6   UPDR0+14
    49 000000                   M       UPDR7   UPDR0+16
    50                          ;
    51                          ;  Control and status registers
    52                          ;
    53 000000                   M       SR0MMR  177572
    54 000000                   M       SR1MMR  177574
    55 000000                   M       SR2MMR  177576
    56 000000                   M       SR3MMR  172516
    57                          ;
```

```
                                   ;   Unibus map registers
                                   ;
   000000                          M       UMRADR  170200          ;Start of Unibus map registers
                                   ;
                                   ;   Memory parity control registers
                                   ;
   000000                          M       MPAR0   172100          ;Memory parity control register # 0
   000000                          M       MPAR16  172136          ;Memory parity control register # 16
                                   ;
                                   ;   Misc values
                                   ;
   000000                          M       MMENBL  1               ;Memory management enable bit in SR0
   000000                          M       EMMAP   20              ;Extended 22-bit memory mapping
   000000                          M       IOMAP   40              ;Extended UNIBUS I/O 22-bit mapping
   000000                          M       PARENL  1               ;Enable memory parity
```

```
                                   .SBTTL  Terminal type names
                           ;------------------------------------------------------------------------
                           ;  The following terminal type names are used with the TRMTYP macro
                           ;  in TSGEN to define terminal types.  The actual type code is stored
                           ;  in the LTRMTP line table.
                           ;
 000000                    M       LA36    1               ;DEC LA36
 000000                    M       LA120   2               ;DEC LA120
 000000                    M       VT52    10              ;DEC VT52
 000000                    M       VT100   20              ;DEC VT100
 000000                    M       ADM3A   100             ;Lear Siegler ADM3A
 000000                    M       HAZEL   200             ;Hazeltine
 000000                    M       DIABLO  1000            ;Diablo
 000000                    M       QUME    2000            ;Qume
 000000                    M       VT2007  4000            ;VT200 with 7 bit control codes
 000000                    M       VT2008  10000           ;VT200 with 8 bit control codes
 000000                    M       VT200   VT2007          ;Generic VT200

                                   .SBTTL  System Editor names
                           ;--------------------------------------------------------------------
                           ;  The following symbolic names are used in TSGEN to declare the default
                           ;  system editor.
                           ;
 000000                    M       EDIT    1               ;EDIT
 000000                    M       TECO    2               ;TECO
 000000                    M       KED     3               ;KED or K52
 000000                    M       K52     4               ;K52 or KED
```

```
                                .SBTTL  Flags in Job Status Word (JSW)
                        ;----------------------------------------------------------------------
                        ;  Flags stored in the Job Status Word (JSW).
                        ;
 000000                 M       NOUSWP  100000  ;Disable USR swapping
 000000                 M       LCBIT   40000   ;Enable lower case input
 000000                 M       REENT   20000   ;Program can be reentered
 000000                 M       SPCTTY  10000   ;Special TT mode (i.e., EDIT)
 000000                 M       PASLIN  4000    ;Pass line to KMON on exit
 000000                 M       VIMAGE  2000    ;Virtual image flag
 000000                 M       OVLBIT  1000    ;Program is overlayed
 000000                 M       CHAIN   400     ;Program was chained to
 000000                 M       ERRHLT  200     ;Halt on I/O error
 000000                 M       NOWAIT  100     ;No wait on .TTYIN requests
 000000                 M       SCHAIN  40      ;Special chain - pass command to KMON
 000000                 M       DISSLE  20      ;Disable single-line editor
 000000                 M       GTLTTY  10      ;.GTLIN from TT not @file

                                .SBTTL  Performance monitor control and status flags
                        ;---------------------------------------------------------------------
                        ;  The following flags are stored in PMFLGS and control the operation
                        ;  of the TSX-Plus performance monitoring feature.
                        ;
 000000                 M       PF$IOW  1       ;Include I/O wait time in analysis
 000000                 M       PF$SYS  2       ;Analize system execution rather than user job
 000000                 M       PF$OVF  100000  ;An overflow occured

                        ;----------------------------------------------------------------------
                        ;  The following flags are returned in response to the JBINFO EMT
                        ;  that is used to determine the status of a specific line.
                        ;
 000000                 M       JIVLN   1       ;This is a virtual line
 000000                 M       JIDLN   2       ;This is a detached line
 000000                 M       JIMLOK  100     ;Job is locked in memory
 000000                 M       JIPRIV  200     ;Job has operator command privilege

                                .SBTTL  Simulated RMON parameters
                        ;----------------------------------------------------------------------
                        ;  The following parameters relate to the simulated RMON that is
                        ;  mapped into page 7 of the user's virtual address space.
                        ;
 000000                 M       RMNBAS  160002  ;Virtual address of simulated RMON value vector
 000000                 M       INDERR  RMNBAS+416 ;IND error cell virtual address
 000000                 M       INDSTA  RMNBAS+417 ;IND status flag cell virtual address
```

```
      1                                               .SBTTL  Misc. parameters
      2                                       ;-------------------------------------------------------------------------------
      3                                       ;   Misc. parameters.
      4                                       ;
      5 000000                                M       MAXSLO  255.    ;Max size of TT and CL silo buffers (bytes)
      6 000000                                M       MAXASN  25.     ;Max # ASSIGN commands allowed
      7 000000                                M       MAXACC  30.     ;Max # ACCESS commands allowed
      8 000000                                M       MXCPRM  6.      ;Max # parameters on command file call
      9 000000                                M       MXCCHR  60.     ;Max # chars in command file paramameter string
     10 000000                                M       MAXLD   8.      ;Max # of logical disks
     11 000000                                M       NUMRCB  8.      ;Max # PLAS regions that can be created by job
     12 000000                                M       NUMWCB  8.      ;Max # PLAS windows that can be created by job
     13 000000                                M       MXPRMT  8.      ;Max # chars in KMON prompt string
     14 000000                                M       SLMXLN  80.     ;Max # chars in Single Line Editor buffer
     15 000000                                M       SLBFSZ  300.    ;Size of SLE save buffer
     16 000000                                M       MAXSRD  40.     ;Max # shared run-time region descriptors
     17 000000                                M       MAXPRI  127.    ;Maximum job priority
     18 000000                                M       VPAR1   20000   ;Virtual address of PAR 1 region
     19 000000                                M       VPAR5   120000  ;Virtual address of PAR 5 system mapping region
     20 000000                                M       CXTBAS  140000  ;Virtual address of Job Context Area
     21 000000                                M       VPAR6   140000  ;Virtual address of PAR 6 mapping region
     22 000000                                M       IOPAGE  177600  ;I/O page address
     23 000000                                M       CPLEMT  2       ;Location where completion routine exit emt is stored
     24 000000                                M       SUPRTN  300     ;Location where GETCSR routine for SETUP is stored
     25 000000                                M       USRLOC  46      ;Cell with USR load address
     26 000000                                M       JSWLOC  44      ;Cell with Job Status Word
     27 000000                                M       HIMLOC  50      ;Cell with Top of memory address
     28 000000                                M       ERRLOC  52      ;Cell with EMT error code
     29 000000                                M       USERRB  53      ;Error severity set by user
     30 000000                                M       RMON    54      ;Cell with RMON base address
     31 000000                                M       BLKWDS  256.    ;Number of words per disk block
     32 000000                                M       ACFLAG  100000  ;Flag character as an activation char
     33 000000                                M       ESCFLG  377     ;Flag char that says following char part of escape seq
     34 000000                                M       TRNSFL  100000  ;Send char in transparency mode
     35 000000                                M       CCFLG   100000  ;Ctrl-C trap flag for .SCCA
     36 000000                                M       DIBFSZ  155.    ;Size of Diablo character buffer
     37 000000                                M       SBUFSZ  512.    ;Size of spool buffer (bytes)
     38 000000                                M       SBUFWD  256.    ;Size of spool buffer (words)
     39 000000                                M       PR7     340     ;Priority 7 in PS
     40 000000                                M       CFLAG   1       ;C-flag in PS
     41 000000                                M       KMNBAS  40000   ;KMON base address
     42 000000                                M       PSW     177776  ;PS word
     43 000000                                M       UMODE   140000  ;User-mode bits in PS
     44 000000                                M       UPMODE  30000   ;User-previous-mode bits in PS
     45 000000                                M       CTTSR   177564  ;Transmitter status register for console terminal
     46 000000                                M       CTTBR   177566  ;Transmitter buffer register for console terminal
     47 000000                                M       DMYDEV  126370  ;Dummy device name to reserve patch space ("$$")
     48 000000                                M       WLDNAM  132500  ;Wildcard file name (Rad50 /*/)
     49 000000                                M       DMPOVL  350     ;Loc overlay name is passed to dump
     50 000000                                M       DMPHND  352     ;Loc handler name is passed to dump
     51 000000                                M       DMPTXT  354     ;Loc of start of asciz dump message text string
```

```
                                        .SBTTL  User error severity status codes
                                 ;-------------------------------------------------------------------------
                                 ;  Error severity status code values stored in USERRB (location 53).
                                 ;
  000000                         M      SC$SUC  1       ;Success
  000000                         M      SC$WRN  2       ;Warning
  000000                         M      SC$ERR  4       ;Error
  000000                         M      SC$SEV  10      ;Severe
  000000                         M      SC$FTL  10      ;Fatal
  000000                         M      SC$UNC  20      ;Unconditional
  000000                         M      SC$NON  40      ;None
```

```
                                        .SBTTL  ASCII Character codes
                                ;------------------------------------------------------------------------
                                ;  Octal values of some ascii characters.
                                ;
000000                          M       ETX     3       ;ETX (Diablo end-of-buffer command)
000000                          M       CTRLC   3       ;Ctrl-C
000000                          M       ACK     6       ;ACK (Diablo restart-output command)
000000                          M       BELL    7       ;BELL
000000                          M       CTRLG   7       ;Ctrl-G
000000                          M       BKSPAC  10      ;Backspace
000000                          M       TAB     11      ;Horizontal tab
000000                          M       LF      12      ;Line feed
000000                          M       FF      14      ;Form feed
000000                          M       CR      15      ;Carriage return
000000                          M       CTRLO   17      ;Ctrl-O. Discard TT output.
000000                          M       CTRLQ   21      ;Ctrl-Q. Continue TT output.
000000                          M       CTRLR   22      ;Ctrl-R. Retype input line.
000000                          M       CTRLS   23      ;Ctrl-S. Suspend TT output.
000000                          M       CTRLU   25      ;Ctrl-U. Erase input line.
000000                          M       CTRLW   27      ;Ctrl-W. Switch to a virtual line.
000000                          M       CTRLX   30      ;Ctrl-X.
000000                          M       CTRLZ   32      ;Ctrl-Z. TT end of file.
000000                          M       ESC     33      ;Escape
000000                          M       SPACE   40      ;Space
000000                          M       RUBOUT  177     ;Rubout. Erase last character typed.
000000                          M       CSICHR  233     ;Control sequence start character for VT200
000000                          M       SS3CHR  217     ;Control sequence start character for VT200
```

```
                                   .SBTTL  Job Context Area
                                 ;-------------------------------------------------------------------------------
                                 ;  Job Context Area Definition
                                 ;
          140000                 $AC     =       CXTBAS          ;Base of Job Context Area
                                 ;
                                 ;  Job stack used in kernel mode, user state.
   000000                        RW      JSTKND  410.
          140000                                                                       JSTKND=$AC
   000000                        RW      JSTK    0.
          141464                                                                       JSTK=$AC
                                 ;
                                 ;  EMT processing temp cells
                                 ;
                                 ;--------
                                 ; -- Cells in this region are pushed on EMT entry.
   000000                        RW      EMTCXT  0               ;Start of emt context area that is pushed
          141464                                                                       EMTCXT=$AC
   000000                        RW      EMTSP   1               ;EMT processing frame pointer
          141464                                                                       EMTSP=$AC
   000000                        RW      URO     1               ;User's RO
          141466                                                                       URO=$AC
   000000                        RW      CUREMT  1               ;Current EMT instruction
          141470                                                                       CUREMT=$AC
   000000                        RW      EMTBLK  8.              ;Local copy of EMT argument block
          141472                                                                       EMTBLK=$AC
   000000                        RW      CHNADR  1               ;Address of channel block we are working on
          141512                                                                       CHNADR=$AC
   000000                        RW      CHNNUM  1               ;Number of channel we are working on
          141514                                                                       CHNNUM=$AC
   000000                        RW      EMTMAP  1               ;Kernel PAR 5 mapping value when EMT executed
          141516                                                                       EMTMAP=$AC
   000000                        RB      EMTERR  1               ;EMT error code
          141520                                                                       EMTERR=$AC
   000000                        RB      INTERR  1               ;Internal error code
          141521                                                                       INTERR=$AC
   000000                        RW      EMTCXN  0               ;End of emt context area that is pushed
          141522                                                                       EMTCXN=$AC
   000000                        M       EMTCXW  <<EMTCXN-EMTCXT>/2> ;# of words in area to be pushed
                                 ; -- End of region that is pushed.
                                 ;--------
   000000                        RW      EMTPS   1               ;PS on emt entry
          141522                                                                       EMTPS=$AC
   000000                        RW      EMTADR  1               ;PC on emt entry
          141524                                                                       EMTADR=$AC
   000000                        RW      EMTLEV  1               ;EMT nesting level
          141526                                                                       EMTLEV=$AC
   000000                        RW      EMTASP  1               ;Pointer to arguments on stack
          141530                                                                       EMTASP=$AC
   000000                        RW      SPCPS   1               ;Address of user's block assoc with .SPCPS
          141532                                                                       SPCPS=$AC
   000000                        RW      EMTCAD  1               ;Pointer to top entry in EMTCAS stack
          141534                                                                       EMTCAD=$AC
   000000                        RW      EMTRAD  1               ;In process of exiting from completion routine
          141536                                                                       EMTRAD=$AC
                                 ;  Return stack for completion routines.
   000000                        RW      EMTCAX  4.              ;Reserve space for stack  / Keep      /
```

```
                 141540                                                                                  EMTCAX=$AC
     38 000000                              RW      EMTCAS  0.              ; Top of stack                / Together /
                 141550                                                                                  EMTCAS=$AC
     39                                     ;
     40                                     ;  CSI temp cells
     41                                     ;
     42 000000                              RW      CSIBUF  45.             ;Holds command line           / Keep       /
                 141550                                                                                  CSIBUF=$AC
     43 000000                              RB      CSIBND  0.              ;   End of CSIBUF buffer /  Together /
                 141702                                                                                  CSIBND=$AC
     44 000000                              RW      CSIARE  6.              ;Internal emt arg block
                 141702                                                                                  CSIARE=$AC
     45 000000                              RW      CSIFIL  5.              ;Holds a file spec
                 141716                                                                                  CSIFIL=$AC
     46 000000                              RW      CSIDEV  1               ;Default device name
                 141730                                                                                  CSIDEV=$AC
     47 000000                              RW      CSIUSP  1               ;User's stack pointer at start of .CSISPC/GEN
                 141732                                                                                  CSIUSP=$AC
     48 000000                              RB      SPCFLG  1               ;0==>.CSIGEN      1==>.CSISPC
                 141734                                                                                  SPCFLG=$AC
     49 000000                              RB      SWTCNT  1               ;Number of switches accrued
                 141735                                                                                  SWTCNT=$AC
     50 000000                              RB      CSIEQL  1               ;Equal sign seen flag
                 141736                                                                                  CSIEQL=$AC
     51                                     ;
     52                                     ;  The following cells contain the current mapping values for the
     53                                     ;  user-mode PAR and PDR values for the job.
     54                                     ;  The $MAPOK flag in LSW7 indicates if this data is valid.
     55                                     ;
     56 000000                              RW      CUPAR0  1               ;User-mode PAR 0
                 141740                                                                                  CUPAR0=$AC
     57 000000                              RW      CUPAR1  1               ;User-mode PAR 1
                 141742                                                                                  CUPAR1=$AC
     58 000000                              RW      CUPAR2  1               ;User-mode PAR 2
                 141744                                                                                  CUPAR2=$AC
     59 000000                              RW      CUPAR3  1               ;User-mode PAR 3
                 141746                                                                                  CUPAR3=$AC
     60 000000                              RW      CUPAR4  1               ;User-mode PAR 4
                 141750                                                                                  CUPAR4=$AC
     61 000000                              RW      CUPAR5  1               ;User-mode PAR 5
                 141752                                                                                  CUPAR5=$AC
     62 000000                              RW      CUPAR6  1               ;User-mode PAR 6
                 141754                                                                                  CUPAR6=$AC
     63 000000                              RW      CUPAR7  1               ;User-mode PAR 7
                 141756                                                                                  CUPAR7=$AC
     64 000000                              RW      CUPDR0  1               ;User-mode PDR 0
                 141760                                                                                  CUPDR0=$AC
     65 000000                              RW      CUPDR1  1               ;User-mode PDR 1
                 141762                                                                                  CUPDR1=$AC
     66 000000                              RW      CUPDR2  1               ;User-mode PDR 2
                 141764                                                                                  CUPDR2=$AC
     67 000000                              RW      CUPDR3  1               ;User-mode PDR 3
                 141766                                                                                  CUPDR3=$AC
     68 000000                              RW      CUPDR4  1               ;User-mode PDR 4
                 141770                                                                                  CUPDR4=$AC
     69 000000                              RW      CUPDR5  1               ;User-mode PDR 5
                 141772                                                                                  CUPDR5=$AC
     70 000000                                RW      CUPDR6  1                   ;User-mode PDR 6
                141774                                                                                CUPDR6=$AC
     71 000000                                RW      CUPDR7  1                   ;User-mode PDR 7
                141776                                                                                CUPDR7=$AC
     72                                       ;
     73                                       ;  Data cells related to shared run-time system support.
     74                                       ;
     75 000000                                RW      CURRDB  1                   ;Address of current run-time descriptor block
                142000                                                                                CURRDB=$AC
     76 000000                                RW      RPAR    8.                  ;PAR values for job
                142002                                                                                RPAR=$AC
     77 000000                                RW      RPDR    8.                  ;PDR values for job
                142022                                                                                RPDR=$AC
     78 000000                                RW      RPDRND  0                   ;End of RPAR-RPDR tables
                142042                                                                                RPDRND=$AC
     79                                       ;
     80                                       ;  PLAS Region Control Blocks and Window Control Blocks
     81                                       ;
     82 000000                                RW      RCBBAS  NUMRCB*<RC$$SZ/2> ;Region control blocks for job
                142042                                                                                RCBBAS=$AC
     83 000000                                RW      RCBEND  0                     ;End of RCB area
                142242                                                                                RCBEND=$AC
     84 000000                                RW      WCBBAS  NUMWCB*<WC$$SZ/2> ;Window control blocks for job
                142242                                                                                WCBBAS=$AC
     85 000000                                RW      WCBEND  0                     ;End of WCB area
                142422                                                                                WCBEND=$AC
     86 000000                                M       RUNRDB  CSIBUF              ;Region Descriptor Block used during job start
     87                                       ;
     88                                       ;  Shared run-time region descriptor tables
     89                                       ;
     90 000000                                RW      SR$PAR  MAXSRD              ;Value to load into PAR register
                142422                                                                                SR$PAR=$AC
     91 000000                                RW      SR$PDR  MAXSRD              ;Value to load into PDR register
                142542                                                                                SR$PDR=$AC
     92 000000                                RB      SR$PX   MAXSRD              ;Index # of which PAR to load
                142662                                                                                SR$PX=$AC
     93                                       ;
     94                                       ;  Assign table
     95                                       ;
     96 000000                                RW      ASNTBL  <MAXASN*<AT$$SZ/2>>       ;ASSIGN information
                142732                                                                                ASNTBL=$AC
     97 000000                                RW      ASNEND  0                   ;End of table
                143406                                                                                ASNEND=$AC
     98                                       ;
     99                                       ;  Data related to the ACCESS command
    100                                       ;
    101 000000                                RW      RESDEV  1                   ;Non-zero ==> Some ACCESS controls
                143406                                                                                RESDEV=$AC
    102 000000                                RW      OKFILE  <MAXACC*<OF$$SZ/2>>
                143410                                                                                OKFILE=$AC
    103 000000                                RW      OKFEND  0
                144064                                                                                OKFEND=$AC
    104                                       ;
    105                                       ;  Data related to logical disks
    106                                       ;
    107 000000                                RW      LDNAME  4*MAXLD             ;File spec for logical disk file (rad50)
                144064                                                                                LDNAME=$AC
    108 000000                          RW      LDPDEV  MAXLD           ;Physical device index # and unit #
                  144164                                                                     LDPDEV=$AC
    109 000000                          RW      LDSIZE  MAXLD           ;Number of blocks in logical disk
                  144204                                                                     LDSIZE=$AC
    110 000000                          RW      LDBASE  MAXLD           ;Base block # on real disk of log disk start
                  144224                                                                     LDBASE=$AC
    111 000000                          RW      LDFLAG  MAXLD           ;LD$xxx status flags
                  144244                                                                     LDFLAG=$AC
    112                                 ;
    113                                 ;  Data regarding job privileges
    114                                 ;
    115 000000                          RW      PRIVA0  1               ;Authorized privileges
                  144264                                                                     PRIVA0=$AC
    116 000000                          RW      PRIVA2  1
                  144266                                                                     PRIVA2=$AC
    117 000000                          RW      PRIVS0  1               ;Privileges as controlled by SET command
                  144270                                                                     PRIVS0=$AC
    118 000000                          RW      PRIVS2  1
                  144272                                                                     PRIVS2=$AC
    119 000000                          RW      PRIVF0  1               ;Privileges for current command file
                  144274                                                                     PRIVF0=$AC
    120 000000                          RW      PRIVF2  1
                  144276                                                                     PRIVF2=$AC
    121 000000                          RW      PRIVC0  1               ;Combined, current privileges for job
                  144300                                                                     PRIVC0=$AC
    122 000000                          RW      PRIVC2  1
                  144302                                                                     PRIVC2=$AC
    123                                 ;
    124                                 ;  Data regarding command file usage.
    125                                 ;
    126 000000                          RW      CFBUF   256.            ;Command file buffer
                  144304                                                                     CFBUF=$AC
    127 000000                          RW      CFEND   0.              ;End of command file buffer
                  145304                                                                     CFEND=$AC
    128 000000                          RW      CFPNT   1               ;Index into command file buffer
                  145304                                                                     CFPNT=$AC
    129 000000                          RW      CFBLK   1               ;Next command file block number
                  145306                                                                     CFBLK=$AC
    130 000000                          RW      CFSPND  1               ;Suspended command file pointer
                  145310                                                                     CFSPND=$AC
    131 000000                          RW      CFIND   1               ;Holds IND status flags
                  145312                                                                     CFIND=$AC
    132 000000                          RW      CURPRM  1               ;Parameter string pointer
                  145314                                                                     CURPRM=$AC
    133 000000                          RW      PRMPNT  MXCPRM          ;Pointers to command parameter strings
                  145316                                                                     PRMPNT=$AC
    134 000000                          RW      LSTPRM  0               ;End of PRMPNT vector
                  145332                                                                     LSTPRM=$AC
    135 000000                          RB      PRMBUF  MXCCHR          ;Buffer to hold command file parameter string
                  145332                                                                     PRMBUF=$AC
    136 000000                          RW      PRMEND  1               ;End of PRMBUF
                  145426                                                                     PRMEND=$AC
    137 000000                          RW      PBFEND  1               ;Pointer to end of parameter string
                  145430                                                                     PBFEND=$AC
    138 000000                          RW      CFARG   5       ;Used for I/O argument block for command file reads
                  145432                                                                     CFARG=$AC
    139                                 ;  Command file push stack
    140 000000                          RW      CFSEND  120.            ;End of stack
               145444                                                                        CFSEND=$AC
    141 000000                          RW      CFSTK   0               ;Start of stack
               146024                                                                        CFSTK=$AC
    142 000000                          RW      CFSP    1               ;Pointer into stack
               146024                                                                        CFSP=$AC
    143                                 ;
    144                                 ;  Data cells related to log file
    145                                 ;
    146 000000                          RW      LOGBUF  256.            ;Log file buffer           ** Keep      **
               146026                                                                        LOGBUF=$AC
    147 000000                          RW      LOGEND  0               ; End of log file buffer  ** Together **
               147026                                                                        LOGEND=$AC
    148 000000                          RW      LOGPTR  1               ;Current pointer into log file buffer
               147026                                                                        LOGPTR=$AC
    149 000000                          RW      LOGBLK  1               ;Number of next block to be written
               147030                                                                        LOGBLK=$AC
    150 000000                          RW      LOGFLG  1               ;Log file control flags (see LF$xxx flags)
               147032                                                                        LOGFLG=$AC
    151 000000                          RW      LOGDVU  1               ;Physical dev # and unit # of logging device
               147034                                                                        LOGDVU=$AC
    152 000000                          RW      LOGBAS  1               ;Base block # of log file subdevice
               147036                                                                        LOGBAS=$AC
    153                                 ;
    154                                 ;  Data cells related to Single Line Editor
    155                                 ;
    156 000000                          RW      SLCX    1               ;Pointer to character in SLEBUF under cursor
               147040                                                                        SLCX=$AC
    157 000000                          RW      SLCCOL  1               ;Display column position of cursor
               147042                                                                        SLCCOL=$AC
    158 000000                          RW      SLECOL  1               ;Display column position of end of line
               147044                                                                        SLECOL=$AC
    159 000000                          RW      SLSCOL  1               ;Display column position of start of line
               147046                                                                        SLSCOL=$AC
    160 000000                          RW      SLOPTR  1               ;Pointer to next char to return to program
               147050                                                                        SLOPTR=$AC
    161 000000                          RW      SLSPTR  1               ;Pointer to most recently saved line
               147052                                                                        SLSPTR=$AC
    162 000000                          RW      SLLPTR  1               ;Pointer to next saved line to recall
               147054                                                                        SLLPTR=$AC
    163 000000                          RW      SLCYC1  1               ;Pointer to 1st command in cycle
               147056                                                                        SLCYC1=$AC
    164 000000                          RW      SLCYC2  1               ;Pointer to last command in cycle
               147060                                                                        SLCYC2=$AC
    165 000000                          RW      SLRPTR  1               ;Pointer to pending recall line
               147062                                                                        SLRPTR=$AC
    166 000000                          RW      SLCSPT  1               ;Pointer to next char position in SLCSBF
               147064                                                                        SLCSPT=$AC
    167 000000                          RW      SLCSR   1               ;Address of routine to process next char
               147066                                                                        SLCSR=$AC
    168 000000                          RB      SLEBUF  SLMXLN+1        ;Line currently being edited
               147070                                                                        SLEBUF=$AC
    169 000000                          RB      SLLBUF  SLBFSZ          ;Previous lines (recalled by use of up-arrow)
               147211                                                                        SLLBUF=$AC
    170 000000                          RB      SLLEND  0               ;End of SLLBUF -must immediately follow SLLBUF
               147665                                                                        SLLEND=$AC
    171 000000                          RB      SLDBUF  SLMXLN+1        ;Last deleted word or portion of line
```

```
                147665                                                                     SLDBUF=$AC
    172 000000                          RB      SLSBUF  SLMXLN+1        ;Line saved with gold-down-arrow key
                150006                                                                     SLSBUF=$AC
    173 000000                          RB      SLCBUF  2               ;Last deleted character
                150127                                                                     SLCBUF=$AC
    174 000000                          RB      SLCSBF  6               ;Buffer used to accrue terminal control seq
                150131                                                                     SLCSBF=$AC
    175 000000                          RB      SLCSBX  0               ;End of SLCSBF -must immediately follow SLCSBF
                150137                                                                     SLCSBX=$AC
    176 000000                          RB      SLGOLD  1               ;Non-zero==>Gold key (PF1) was pressed
                150137                                                                     SLGOLD=$AC
    177 000000                          RB      SLCR    1               ;Carriage-return was last character, need LF
                150140                                                                     SLCR=$AC
    178 000000                          RB      SLBACK  1               ;Non-zero==>In reverse direction mode
                150141                                                                     SLBACK=$AC
    179 000000                          RB      SLDOWN  1               ;Non-zero==>Last recall was in down direction
                150142                                                                     SLDOWN=$AC
    180 000000                          RB      SLOVER  1               ;Non-zero==>Overstrike mode
                150143                                                                     SLOVER=$AC
    181 000000                          RB      RCLREV  1               ;Non-zero==>Display recall/all reverse order
                150144                                                                     RCLREV=$AC
    182                                 ;
    183                                 ;  Data cells related to user-defined keys
    184                                 ;
    185 000000                          RW      KEYRCB  1               ;Address of region control block for key defs
                150146                                                                     KEYRCB=$AC
    186 000000                          RW      KEYPAR  1               ;Address to use to map a PAR to key region
                150150                                                                     KEYPAR=$AC
    187                                 ;
    188                                 ;  Data cells related to spooling.
    189                                 ;
    190 000000                          RW      SXSFCB  1               ;SFCB that is using spool buffer
                150152                                                                     SXSFCB=$AC
    191 000000                          RW      SXBUF1  1
                150154                                                                     SXBUF1=$AC
    192 000000                          RW      SPUBUF  256.            ;COOP buffer
                150156                                                                     SPUBUF=$AC
    193 000000                          RW      SPUBND  0               ;End of COOP buffer
                151156                                                                     SPUBND=$AC
    194 000000                          RW      SXBPNT  1               ;Pointer into spool buffer
                151156                                                                     SXBPNT=$AC
    195 000000                          RW      SPLARG  5               ;Used for spool EMT arg block
                151160                                                                     SPLARG=$AC
    196 000000                          RW      SPDLBF  1               ;Used when deleting a spool file
                151172                                                                     SPDLBF=$AC
    197 000000                          RW      UFORM   3               ;Current spool form name
                151174                                                                     UFORM=$AC
    198                                 ;
    199                                 ;  Data cells for TSDBUG debugging system
    200                                 ;
    201 000000                          RW      D. START 0              ;Start of debugging data area
                151202                                                                     D. START=$AC
    202 000000                          RW      D. R0   1               ;User's R0
                151202                                                                     D. R0=$AC
    203 000000                          RW      D. R1   1               ;User's R1
                151204                                                                     D. R1=$AC
    204 000000                          RW      D. R2   1               ;User's R2
```

```
         151206                                                                  D.R2=$AC
 000000                     RW      D.R3     1              ;User's R3
         151210                                                                  D.R3=$AC
 000000                     RW      D.R4     1              ;User's R4
         151212                                                                  D.R4=$AC
 000000                     RW      D.R5     1              ;User's R5
         151214                                                                  D.R5=$AC
 000000                     RW      D.R6     1              ;User's R6 (SP)
         151216                                                                  D.R6=$AC
 000000                     RW      D.R7     1              ;User's R7 (PC)
         151220                                                                  D.R7=$AC
 000000                     RW      D.PS     1              ;User's PSW
         151222                                                                  D.PS=$AC
 000000                     RW      D.SPSV   1              ;Saved initial stack pointer
         151224                                                                  D.SPSV=$AC
 000000                     RW      D.LOC    1              ;Address of currently open location
         151226                                                                  D.LOC=$AC
 000000                     RW      D.DADR   1              ;Address of monitored data word
         151230                                                                  D.DADR=$AC
 000000                     RW      D.DOLD   1              ;Old value of monitored data word
         151232                                                                  D.DOLD=$AC
 000000                     RW      D.DTRG   1              ;Target value for monitored data word
         151234                                                                  D.DTRG=$AC
 000000                     RW      D.MASK   1              ;Mask used for data monitoring ($M register)
         151236                                                                  D.MASK=$AC
 000000                     RW      D.PFMT   1              ;Printout format ($F register)
         151240                                                                  D.PFMT=$AC
 000000                     RW      D.LVAL   1              ;Last displayed value
         151242                                                                  D.LVAL=$AC
 000000                     RW      D.VAL1   1              ;Command argument value 1
         151244                                                                  D.VAL1=$AC
 000000                     RW      D.VAL2   1              ;Command argument value 2
         151246                                                                  D.VAL2=$AC
 000000                     RW      D.FLAG   1              ;D$xxxx flags (see below)
         151250                                                                  D.FLAG=$AC
 000000                     RW      D.PCNT   1              ;Proceed repeat count
         151252                                                                  D.PCNT=$AC
 000000                     RW      D.PCOL   1              ;Current print column counter
         151254                                                                  D.PCOL=$AC
 000000                     RW      D.ILEN   1              ;Number of bytes used by current instruction
         151256                                                                  D.ILEN=$AC
 000000                     RW      D.RLBS   8.             ;Relocation base offsets
         151260                                                                  D.RLBS=$AC
 000000                     RW      D.BKAD   9.             ;Breakpoint addresses
         151300                                                                  D.BKAD=$AC
 000000                     M       D.CBRK   D.BKAD+16.     ;Address of temp breakpoint following a CALL
 000000                     RW      D.BKSV   9.             ;Instruction saved from breakpoint location
         151322                                                                  D.BKSV=$AC
 000000                     RB      D.BKNM   1              ;Current breakpoint number
         151344                                                                  D.BKNM=$AC
 000000                     RB      D.V1FL   1              ;Flag indicating if arg value 1 specified
         151345                                                                  D.V1FL=$AC
 000000                     RB      D.V2FL   1              ;Flag indicating if arg value 2 specified
         151346                                                                  D.V2FL=$AC
 000000                     RB      D.LOCM   1              ;Mode of currently open location
         151347                                                                  D.LOCM=$AC
 000000                     RB      D.SVCH   1              ;"Pushed" input character
```

```
            151350                                                                            D.SVCH=$AC
    234 000000                    RB      D.BYTM   1               ;Word/Byte mode indicator
            151351                                                                            D.BYTM=$AC
    235 000000                    RB      D.NMBF   8.              ;Buffer used to hold numeric values
            151352                                                                            D.NMBF=$AC
    236 000000                    RB      D.NMBE   0               ;End of D.NMBF
            151362                                                                            D.NMBE=$AC
    237 000000                    RW      D.END    0               ;End of debugging data area
            151362                                                                            D.END=$AC
    238                           ;
    239                           ;  Debugger control flags stored in D.FLAG word
    240                           ;
    241 000000                    M       D$SSTP   1               ;Doing single stepping
    242 000000                    M       D$IBRK   2               ;An instruction breakpoint occurred
    243 000000                    M       D$DBRK   4               ;A data breakpoint occurred
    244 000000                    M       D$DMON   10              ;Data cell monitoring in effect
    245 000000                    M       D$DVAL   20              ;Target value specified for monitored data
    246 000000                    M       D$IPND   40              ;Replaced breakpoint instruction pending
    247 000000                    M       D$SBRK   100             ;Single step breakpoint occurred
    248 000000                    M       D$FBRK   200             ;Forced breakpoint (user typed ctrl-B)
    249 000000                    M       D$BKST   400             ;Breakpoints are in place in program
    250 000000                    M       D$CKBK   1000            ;Some instruction breakpoints are specified
    251 000000                    M       D$INIT   2000            ;Debugger initialization has been done
    252 000000                    M       D$TSTP   4000            ;Single step one instruction
    253 000000                    M       D$RUN    100000          ;Debugger program is executing now
    254                           ;
    255                           ;  Print format control flags stored in the D.PFMT register
    256                           ;
    257 000000                    M       DP$DAA   1               ;Print absolute addresses for decoded instruct
    258 000000                    M       DP$LAA   2               ;Print abs addresses for locations
    259                           ;
    260                           ;  Misc. parameters
    261                           ;
    262 000000                    RW      UPPN     2               ;Project - Programmer number
            151362                                                                            UPPN=$AC
    263 000000                    RW      RUNDEV   4       ;Name of device and program that is currently running
            151366                                                                            RUNDEV=$AC
    264 000000                    RW      RUNFLG   1               ;AF$xxx flags for program currently running
            151376                                                                            RUNFLG=$AC
    265 000000                    RW      AFCF     1               ;AF$xxx flags for current command file
            151400                                                                            AFCF=$AC
    266 000000                    RW      JCDB     2               ;Point to 1st shared file CDB block for job
            151402                                                                            JCDB=$AC
    267 000000                    RW      ERRSPC   4               ;Name of file to print with KMON err message
            151406                                                                            ERRSPC=$AC
    268 000000                    RW      DEVLS    1               ;Address of non-linked .DEVICE reset list
            151416                                                                            DEVLS=$AC
    269 000000                    RW      DEVLL    1               ;Address of linked .DEVICE reset list
            151420                                                                            DEVLL=$AC
    270 000000                    RW      UHIMEM   1               ;Max virtual address assigned to job
            151422                                                                            UHIMEM=$AC
    271 000000                    RW      USRSTK   1               ;Initial user stack pointer
            151424                                                                            USRSTK=$AC
    272 000000                    RW      SPSAVE   1
            151426                                                                            SPSAVE=$AC
    273 000000                    RW      USTART   1
            151430                                                                            USTART=$AC
    274 000000                  RW      ODTBAS  1                ;Addr of top of memory available to job
              151432                                                                ODTBAS=$AC
    275 000000                  RW      NEWJSW  1                ;JSW for SAV file being started
              151434                                                                NEWJSW=$AC
    276 000000                  RW      UMSPSV  1                ;User-mode SP saved by PKSTAT (0==>SP active)
              151436                                                                UMSPSV=$AC
    277 000000                  RW      MAXMEM  1
              151440                                                                MAXMEM=$AC
    278 000000                  RW      PRGTOP  1                ;Top address of program about to be started
              151442                                                                PRGTOP=$AC
    279 000000                  RW      PRGSIZ  1                ;Address above top of total area for program
              151444                                                                PRGSIZ=$AC
    280 000000                  RW      UTRPAD  1
              151446                                                                UTRPAD=$AC
    281 000000                  RW      UFPTRP  1
              151450                                                                UFPTRP=$AC
    282 000000                  RW      LSTFDT  1                ;File directory time entry from last .LOOKUP
              151452                                                                LSTFDT=$AC
    283 000000                  RW      LSTFDD  1                ;File directory date entry from last .LOOKUP
              151454                                                                LSTFDD=$AC
    284 000000                  RW      JOBCCB  1                ;Active cache control blocks for job
              151456                                                                JOBCCB=$AC
    285 000000                  RW      NPCCB   1                ;Number of pending cache control blocks
              151460                                                                NPCCB=$AC
    286 000000                  RW      UCHAN   1                ;CDFN channel space
              151462                                                                UCHAN=$AC
    287 000000                  RW      CINDAT  <<1000-500>/2>   ;Save area for .chain data
              151464                                                                CINDAT=$AC
    288 000000                  RW      ABRTAD  1
              151764                                                                ABRTAD=$AC
    289 000000                  RW      UCISPC  4                ;User Command Interface (UCI) file spec
              151766                                                                UCISPC=$AC
    290 000000                  RW      LOFSPC  4                ;Logoff command file spec
              151776                                                                LOFSPC=$AC
    291 000000                  RW      MXJPRI  1                ;Max priority allowed for this job
              152006                                                                MXJPRI=$AC
    292 000000                  RW      JPWDEV  1                ;Device to use for print-window function
              152010                                                                JPWDEV=$AC
    293 000000                  RW      JPWTYP  1                ;Print-window device type
              152012                                                                JPWTYP=$AC
    294 000000                  RW      JPWFLG  1                ;Print-window control flags (PA$xxx)
              152014                                                                JPWFLG=$AC
    295 000000                  RW      KMPRMT  <<MXPRMT+2>/2>   ;String to use for KMON command prompt
              152016                                                                KMPRMT=$AC
    296 000000                  RW      SBPSUF  8.               ;Start-up command file name for subprocesses
              152030                                                                SBPSUF=$AC
    297                         ;
    298                         ;  Misc. byte data cells
    299                         ;
    300 000000                  RB      CINFLG  1                ;Chain in progress
              152050                                                                CINFLG=$AC
    301 000000                  RB      RUNARG  1                ;RUN command arg string pending for chain data
              152051                                                                RUNARG=$AC
    302 000000                  RB      LSTCHR  1
              152052                                                                LSTCHR=$AC
    303 000000                  RB      ABRTCD  1
              152053                                                                ABRTCD=$AC
    304 000000                      RB      SERFLG  1
                152054                                                          SERFLG=$AC
    305 000000                      RB      CFNEST  1               ;Command file nesting level
                152055                                                          CFNEST=$AC
    306 000000                      RB      ERRSEV  1
                152056                                                          ERRSEV=$AC
    307 000000                      RB      UERSEV  1               ;User specified error severity level (from 53)
                152057                                                          UERSEV=$AC
    308 000000                      RB      CURCP   1               ;Non-zero ==> executing a completion routine
                152060                                                          CURCP=$AC
    309 000000                      RB      CFHOLD  1               ;Look-ahead command file char being held
                152061                                                          CFHOLD=$AC
    310 000000                      RB      SPIJ    1               ;Index of job that initiated subprocess
                152062                                                          SPIJ=$AC
    311 000000                      RB      SUCF2   SF2LEN          ;Name of secondary start-up command file
                152063                                                          SUCF2=$AC
    312 000000                      RB      DOTRMP  1               ;Non-zero ==> use TRAP for mapping
                152103                                                          DOTRMP=$AC
    313                             ;
    314                             ;   End of Job Context Area
    315 000000                      RW      CXTEND  0               ;End of Job Context Area
                152104                                                          CXTEND=$AC
    316
    317 000000                      M       CXTSIZ  <CXTEND-CXTBAS> ;Size of job context area
    318         000001                      .END
Errors detected:  0

*** Assembler statistics


Work  file  reads: 0
Work  file writes: 0
Size of work file: 8325 Words  ( 33 Pages)
Size of core pool: 17920 Words  ( 70 Pages)
Operating  system: RT-11

Elapsed time: 00:03:05.29
DK:TSDEFS,LP:TSDEFS=DK:TSDEFS.MAC/C/N:SYM
```

```
Cross reference table (CREF V05.04)


$1CTLC    6-9#
$1ESC     2-15#
$1STCH    4-13#
$1STLG    7-5#
$8BIT     3-7#      3-35
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          14-28     14-29     14-30     14-34     14-35     14-36     14-37     14-38     14-39     14-40     14-41     14-42
          14-43     14-44     14-45     14-46     14-47     14-48     14-49     14-50     15-5#     15-6      15-7      15-8
          15-9      15-10     17-5#     17-6      17-7      17-8      17-9      18-5#     18-6      18-7      18-8      18-9
          18-10     18-11     18-12     19-5#     19-6      19-7      19-8      19-9      19-10     19-12     19-13     19-14
          19-15     19-16     19-17     19-18     19-19     19-20     19-21     19-22     19-23     19-24     19-25     19-26
          19-27     19-28     21-6#     21-7      21-8      21-9      21-10     21-11     21-12     21-13     22-6#     22-7
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$CFCCL   5-5#
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$CFKIL   7-13#
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$CFSOT   5-17#     5-22
$CHACT   6-14#
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$CTRLD  10-10#    10-23
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$CTRLS   4-15#
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$DBGMD   7-11#
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$DEAD    4-7#
$DEBUG  10-7#
$DEFER   3-15#
$DETCH   2-14#     2-18
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$DHCDO  11-15#
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$DHXON  11-12#
$DIBOL   7-18#     7-23
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$DOOFF   2-9#
$DUPRN   7-16#
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$FORMO   5-15#
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$GCECO   4-17#
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$SGQ1A    9-6#      9-16
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$SLLET   8-15#     8-23
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$SLTTY   8-14#     8-23
$SNWTT   7-4#      7-23
$SOTFN   8-7#
$SPLJB   2-18#
$START   3-8#
$STSNG   7-19#     7-23
$SUCF   10-4#
$SUSPN   2-12#
$SXOFF  11-4#
$SXON   11-5#
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$TRNSP   4-8#      4-21
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$UCLCF   8-10#     8-23
$UCLCL   8-12#     8-23
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$VBELL  10-19#
$VIRJB  10-6#
$VNOTT   2-13#     2-18
$VTESC   6-13#
$WDISP   7-17#
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$XCHAR   4-9#
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AC$BLK  26-12#
AC$REV  26-13#
AC$SET  26-10#
AC$ULN  26-14#
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AD$FLG  42-39#
AD$JOB  42-38#
ADM3A   62-11#
ADM3FL   3-44#
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AF$DBG   44-21#
AF$DUP   44-24#
AF$HIE   44-15#
AF$IND   44-25#
AF$IOP   44-17#
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AR$PWD   49-8#
AR$SUF   49-10#
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AT$LOG   42-7#
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AW$RPT   26-29#
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AW$SS    26-27#
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C.DEVQ  18-11#
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C.USED  18-9#
CARDET  55-21#
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CC$CBP  35-14#
CC$DVU  35-9#
CC$LNK  35-7#
CC$OQE  35-11#
CC$UBO  35-13#
CC$UBP  35-12#
CC$WCT  35-10#
CC$WFL  35-15#
CCFLG   64-35#
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CD$$UB  41-27#
CD$BAS  41-31#
CD$DVU  41-30#
CD$JOB  41-34#
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CF$QUT  16-73#
CFACFL  16-61#
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CFBLK   67-129#
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CFHOLD  67-309#
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CHNADR  67-20#
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CLSFBC  60-49#
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CLSFGO   60-67#
CLSFHS   60-51#
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CLSFMS   60-58#
CLSFOC   60-63#
CLSFRB   60-50#
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CLSFRS   60-66#
CLSFSL   60-55#
CLSFSO   60-53#
CLSFSP   60-59#
CLSFSS   60-56#
CLSFSW   60-57#
CLSFWB   60-64#
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PRIVC0   67-121#
PRIVC2   67-122#
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PRIVS2   67-118#
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PRMEND   67-136#
PRMPNT   67-133#
PSW      64-42#
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Q.BLKN   19-8#     20-10
Q.BUFF   19-12#    20-13
Q.CHAN   19-18#
Q.COMP   19-14#    20-15
Q.CSW    19-7#     20-9
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Q.DEVX   19-19#    20-18
Q.FLAG   19-20#    20-17
Q.FUNC   19-9#     20-11
Q.ICSW   19-27#
Q.JNUM   19-11#
Q.JOB    19-21#
Q.LINK   19-6#     20-8
Q.PA5    19-16#    20-16
Q.PA6    19-25#
Q.PAR    19-15#
Q.UCSW   19-26#
Q.UMPB   19-23#
Q.UMPP   19-24#
Q.UMRX   19-17#    20-19
Q.UMVB   19-22#
Q.UNIT   19-10#    19-11     20-12
Q.WCNT   19-13#    20-14
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QF$IOT   20-29#
QF$MIO   20-26#
QF$OWC   20-28#
QF$SCR   20-25#
QF$SYN   20-30#
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QUMENO    3-42#
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R.GSIZ   31-36#
R.GSTS   31-37#
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RC$$SZ   31-14#
RC$AEP   31-27#
RC$AGE   31-24#
RC$BAS   31-8#
RC$BLK   31-9#
RC$CNT   31-12#
RC$EXC   31-23#
RC$EXI   31-25#
RC$FLG   31-10#
RC$GBL   31-20#
RC$INM   31-18#
RC$LCG   31-22#
RC$LEN   31-6#
RC$NAM   31-11#
RC$OFF   31-26#
RC$OWN   31-13#
RC$PAG   31-7#
RC$PRM   31-28#
RC$PVT   31-21#
RC$SFA   31-19#
RC$USE   31-29#
RCBBAS   67-82#
RCBEND   67-83#
RCLREV   67-181#
RCVACT   55-22#
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RCVPAR  55-35#
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RDONE   56-11#
REENT   63-7#
REQSND  55-26#
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RING    55-19#
RLINE   56-22#
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RPAR    67-76#
RPDR    67-77#
RPDRND  67-78#
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RS.CRR  31-42#
RS.EGR  31-49#
RS.EXI  31-50#
RS.GBL  31-46#
RS.NAL  31-44#
RS.NEW  31-45#
RS.PVT  31-51#
RS.UNM  31-43#
RT$$SZ  36-15#
RT$BAS  36-11#
RT$DEV  36-8#
RT$EXT  36-10#
RT$FLG  36-13#
RT$NAM  36-9#
RT$SKP  36-14#
RT$TOP  36-12#
RUBOUT  66-25#
RUNARG  67-301#
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RUNFLG  67-264#
RUNRDB  67-86#
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S$$RT   14-13#
S$$RUN  14-30#
S$CPU   14-28#
S$DUMY  14-8#
S$HICP  14-20#
S$INWT  14-44#
S$IOFN  14-23#
S$IOWT  14-39#
S$LOW   14-29#
S$MSWT  14-47#
S$NEDQ  14-34#
S$OTFN  14-19#
S$OTLO  14-22#
S$OTWT  14-40#
S$QCCB  14-36#
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S$QUSR  14-38#
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S$SFWT  14-41#
S$SPCB  14-46#
S$SPDB  14-43#
S$SPND  14-48#
S$TMWT  14-49#
S$TTFN  14-18#
S$TTSC  14-17#
S$TWFN  14-21#
S$WFM   14-50#
S$WSMB  14-42#
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S150    59-9#
S1800   59-13#
S19200  59-20#
S2000   59-14#
S2400   59-15#
S300    59-10#
S3600   59-16#
S4800   59-17#
S50     59-5#
S600    59-11#
S7200   59-18#
S75     59-6#
S9600   59-19#
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SA$RGN  22-16#
SB$$SZ  15-10#
SB$END  15-9#
SB$LNK  15-6#
SB$PNT  15-7#
SB$TXT  15-8#
SBPSUF  67-296#
SBUFSZ  64-37#
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SC$ERR  65-7#
SC$FTL  65-9#
SC$NON  65-11#
SC$SEV  65-8#
SC$SUC  65-5#
SC$UNC  65-10#
SC$WRN  65-6#
SCHAIN  63-15#
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SD$BWT  48-29#
SD$CLR  48-37#
SD$DEL  48-30#    48-37
SD$FLK  48-32#
SD$HLD  48-33#
SD$INR  48-28#
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SDBLK   48-17#
SDBU    48-24#
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SDBUF2  48-12#
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SDDVU   48-15#
SDFHD   48-18#
SDFLAG  48-21#
SDFLNK  48-10#
SDFORM  48-19#
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SDNAME  48-14#
SDSFCB  48-9#
SDSKIP  48-22#
SDUSER  48-13#
SDWLST  48-16#
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SF$BN1  47-25#
SF$BSY  47-24#
SF$DEL  47-28#
SF$HLD  47-27#
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SFCHAN  47-11#
SFFILE  47-17#
SFFLAG  47-10#
SFFLNK  47-15#
SFFORM  47-16#
SFID    47-18#
SFNMBL  47-13#
SFQLNK  47-19#
SFSDCB  47-12#
SFSTRT  47-14#
SFUSER  47-9#
SG$ELG  16-38#
SG$EMT  16-41#
SG$IOT  16-40#
SG$MMU  16-39#
SG$MTM  16-43#
SG$MTS  16-44#
SG$PAR  16-42#
SG$SYJ  16-45#
SG$TSX  16-46#
SH$$SZ  39-38#
SH$FLG  39-37#
SH$NAM  39-35#
SH$RTN  39-36#
SH$VAL  39-34#
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SLBFSZ  64-15#
SLCBUF  67-173#
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SLCSBF  67-174#
SLCSBX  67-175#
SLCSPT  67-166#
SLCSR   67-167#
SLCX    67-156#
SLCYC1  67-163#
SLCYC2  67-164#
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SLEBUF  67-168#
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SLLBUF  67-169#
SLLEND  67-170#
SLLPTR  67-162#
SLMXLN  64-14#
SLOPTR  67-160#
SLOVER  67-180#
SLRPTR  67-165#
SLSBUF  67-172#
SLSCOL  67-159#
SLSPTR  67-161#
SN$ID   29-10#
SN$JOB  29-7#
SN$LNK  29-6#
SN$RTN  29-12#
SN$XX1  29-8#
SN$XX2  29-9#
SN$XX3  29-11#
SNDCLR  55-20#
SO$NO   39-42#
SO$NVL  39-43#
SO$OCT  39-44#
SP$$SZ  22-11#
SP$CMD  22-8#
SP$DW1  22-10#
SP$JOB  22-9#
SP$LNK  22-7#
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SPCPS   67-33#
SPCTTY  63-8#
SPDLBF  67-196#
SPIJ    67-310#
SPLARG  67-195#
SPSAVE  67-272#
SPUBND  67-193#
SPUBUF  67-192#
SR$PAR  67-90#
SR$PDR  67-91#
SR$PX   67-92#
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SR1MMR  61-54#
SR2MMR  61-55#
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SS$RUN  16-50#
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STATCH  55-18#
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SUPRTN  64-24#
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SXSFCB  67-190#
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TIE     56-9#      56-15
TLINE   56-10#
TO$FF   16-66#
TO$LC   16-67#
TO$SCP  16-68#
TO$TAB  16-65#
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TRDY    56-8#
TRINT   55-40#
TRMRDY  55-27#
TRNSFL  64-34#
TRRDY   55-39#
TSDEFS   1-5        1-6#
UC$$SZ  30-13#
UC$MDC  30-12#
UC$NDC  30-11#
UCHAN   67-286#
UCISPC  67-289#
UCLMCL  30-6#
UCLMKL  30-5#
UERSEV  67-307#
UFORM   67-197#
UFPTRP  67-281#
UHIMEM  67-270#
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UK$PTR  30-19#
UM$$SZ  33-13#
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UM$NMR  33-10#
UM$UMR  33-9#
UM$WDS  33-11#
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UMRADR  61-60#
UMSPSV  67-276#
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UPAR1   61-32#
UPAR2   61-33#
UPAR3   61-34#
UPAR4   61-35#
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US$$SZ  30-26#
US$TXT  30-25#
USERRB  64-29#
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USRSTK  67-271#
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UTRPAD  67-280#
VC$$SZ  29-28#
VC$FLG  29-27#
VC$JOB  29-25#
VC$JSR  29-22#
VC$PRI  29-26#
VC$RTN  29-23#
VC$VEC  29-24#
VF$7BT  58-34#
VF$8BT  58-35#
VF$ABT  58-57#
VF$BC   58-54#
VF$CTS  58-45#
VF$DCD  58-44#
VF$DET  29-33#
VF$DF   58-9#
VF$DIR  29-32#
VF$DSR  58-42#
VF$DTR  58-50#
VF$DV   58-21#
VF$EVN  58-37#
VF$FE   58-23#
VF$IFC  58-56#
VF$LEN  58-33#
VF$LIN  58-15#
VF$LT   58-51#
VF$MR   58-14#
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VF$OFC  58-53#
VF$PAR  58-36#
VF$PER  58-24#
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VF$RE   58-55#
VF$RIE  58-13#
VF$RNG  58-43#
VF$RTS  58-49#
VF$SC   58-38#
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VF$TGO  58-62#
VF$TIE  58-8#
VF$TR   58-7#
VF$XLN  58-11#
VF$XOF  58-52#
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VO$RDB  17-18#
VO$WDB  17-17#
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VPAR5   64-19#
VPAR6   64-21#
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VT10FL   3-32#
VT10NO   3-33#
VT200   62-17#
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VT20FL   3-35#
VT20NO   3-36#
VT52    62-9#
VT52FL   3-29#
VT52NO   3-30#
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W.NBAS  32-21#
W.NID   32-19#
W.NLEN  32-25#
W.NOFF  32-24#
W.NRID  32-23#
W.NSIZ  32-22#
W.NSTS  32-26#
W.SIZE  32-27#
WC$$SZ  32-13#
WC$LEN  32-9#
WC$NPR  32-12#
WC$OFF  32-10#
WC$PAR  32-11#
WC$RCB  32-5#
WC$SIZ  32-6#
WC$VHI  32-8#
WC$VLO  32-7#
WCBBAS  67-84#
WCBEND  67-85#
WLDNAM  64-48#
WS.CRW  32-34#
WS.ELW  32-32#
WS.MAP  32-31#
WS.UNM  32-33#
XL$CD   60-43#
XL$CTS  60-42#
XL$RI   60-44#
XL$XFR  60-41#
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ZCLR    56-14#
ZFRMER  56-20#
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         55-8    55-9    55-18   55-19   55-20   55-21   55-22   55-23   55-24   55-25   55-26   55-27
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         57-54   57-55   57-56   57-57   58-7    58-8    58-9    58-10   58-11   58-12   58-13   58-14
         58-15   58-21   58-22   58-23   58-24   58-29   58-33   58-34   58-35   58-36   58-37   58-38
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          58-57       58-61       58-62       59-5        59-6        59-7        59-8        59-9        59-10       59-11       59-12       59-13
          59-14       59-15       59-16       59-17       59-18       59-19       59-20       59-25       59-26       59-27       59-28       60-7
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