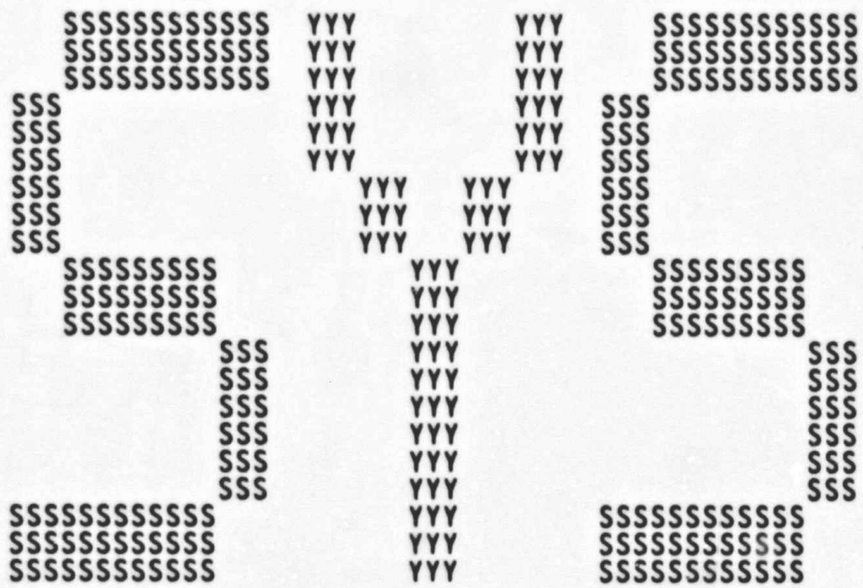
SSSSSSSSSSS YYY YYY SSSSSSSSSSS
SSSSSSSSSSS YYY YYY SSSSSSSSSSS
SSSSSSSSSSS YYY YYY SSSSSSSSSSS
SSS YYY YYY SSS
SSS YYY YYY SSS
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SSSSSSSSS YYY SSSSSSSSS
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SSS YYY SSS
SSSSSSSSSSS YYY SSSSSSSSSSS
SSSSSSSSSSS YYY SSSSSSSSSSS
SSSSSSSSSSS YYY SSSSSSSSSSS

```
  SSSSSSSS  YY      YY   SSSSSSSS   GGGGGGGG  EEEEEEEEEE  TTTTTTTTTT  DDDDDDDD    VV      VV    IIIIII
  SSSSSSSS  YY      YY   SSSSSSSS   GGGGGGGG  EEEEEEEEEE  TTTTTTTTTT  DDDDDDDD    VV      VV    IIIIII
SS          YY      YY  SS          GG        EE              TT      DD      DD  VV      VV      II
SS          YY      YY  SS          GG        EE              TT      DD      DD  VV      VV      II
SS            YY  YY    SS          GG        EE              TT      DD      DD  VV      VV      II
SS            YY  YY    SS          GG        EE              TT      DD      DD  VV      VV      II
  SSSSSS        YY        SSSSSS    GG        EEEEEEEE        TT      DD      DD  VV      VV      II
  SSSSSS        YY        SSSSSS    GG        EEEEEEEE        TT      DD      DD  VV      VV      II
        SS      YY              SS  GG  GGGGGG  EE              TT      DD      DD  VV      VV      II
        SS      YY              SS  GG  GGGGGG  EE              TT      DD      DD  VV      VV      II
        SS      YY              SS  GG      GG  EE              TT      DD      DD    VV  VV        II      ....
        SS      YY              SS  GG      GG  EE              TT      DD      DD    VV  VV        II      ....
SSSSSSSS        YY      SSSSSSSS      GGGGGG    EEEEEEEEEE      TT      DDDDDDDD      VV        IIIIII    ....
SSSSSSSS        YY      SSSSSSSS      GGGGGG    EEEEEEEEEE      TT      DDDDDDDD      VV        IIIIII    ....

LL              IIIIII    SSSSSSSS
LL              IIIIII    SSSSSSSS
LL                II      SS
LL                II      SS
LL                II      SS
LL                II      SS
LL                II        SSSSSS
LL                II        SSSSSS
LL                II              SS
LL                II              SS
LL                II              SS
LL                II              SS
LLLLLLLLLL      IIIIII    SSSSSSSS
LLLLLLLLLL      IIIIII    SSSSSSSS
```

Table of contents

```
0000     1          .TITLE  SYSGETDVI - System Services to Get Device Information
0000     2          .IDENT  'V04-000'
0000     3
0000     4  ;
0000     5  ;*****************************************************************************
0000     6  ;*                                                                           *
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0000    24  ;*                                                                           *
0000    25  ;*                                                                           *
0000    26  ;*****************************************************************************
0000    27  ;
0000    28  ; AUTHOR: Peter H. Lipman,  CREATION DATE: 20-Oct-1981
0000    29  ;
0000    30  ; MODIFIED BY:
0000    31  ;
0000    32  ;       V03-022 CWH3022         CW Hobbs                25-Jul-1984
0000    33  ;               Change special items for shadow set information to call
0000    34  ;               loadable support routine in mount verification (sysloa).
0000    35  ;               This makes V4.n support of shadowing much simpler.
0000    36  ;
0000    37  ;       V03-021 LY0512          Larry Yetto             20-JUL-1984 13:01
0000    38  ;               Fix bug in MEDIA_NAME code
0000    39  ;
0000    40  ;       V03-020 LY0502          Larry Yetto             10-JUL-1984 10:12
0000    41  ;               Add support for the MEDIA_NAME and MEDIA_TYPE item codes
0000    42  ;
0000    43  ;       V03-019 TMK0001         Todd M. Katz            29-Apr-1984
0000    44  ;               Add support for full length ( i.e. - LNM$C_NAMLENGTH )
0000    45  ;               logical volume names. This support is accomplished through
0000    46  ;               the following changes:
0000    47  ;
0000    48  ;                   1. Change the scratch storage area within the local stack
0000    49  ;                      storage from LOG$C_NAMLENGTH to 4 bytes. This scratch area
0000    50  ;                      will now be used only to temporarily store values up to a
0000    51  ;                      longword in size.
0000    52  ;
0000    53  ;                   2. Previously this scratch storage area had also been used to
0000    54  ;                      temporarily store character strings. Now, whenever a string
0000    55  ;                      must temporarily be stored, a KRP is used to provide the
0000    56  ;                      storage space. The KRP is allocated from the lookaside list
0000    57  ;                      the first time temporary storage is required for a character
```

```
0000     58 ;                  string. It remains allocated, and maybe utilized for
0000     59 ;                  temporarily storing other character strings, for the
0000     60 ;                  remainder of the current $GETDVI invocation at which time it
0000     61 ;                  is returned to the KRP lookaside list.
0000     62 ;
0000     63 ;       V03-018 RKS0018          RICK SPITZ              11-APR-1984
0000     64 ;               Enhance DVI_USE_DEVNAM to redirect references from a
0000     65 ;               physical terminal UCB to the associated logical UCB.
0000     66 ;
0000     67 ;       V03-017 LMP0221          L. Mark Pilant,         30-Mar-1984  16:35
0000     68 ;               Change UCB$L_OWNUIC to ORB$L_OWNER and UCB$W_VPROT to
0000     69 ;               ORB$W_PROT.
0000     70 ;
0000     71 ;       V03-016 MHB0115          Mark Bramhall           20-Mar-1984
0000     72 ;               Check for network device in SPC_TT_PHYDEVNAM.
0000     73 ;
0000     74 ;       V03-015 MHB0104          Mark Bramhall           1-Mar-1984
0000     75 ;               Added SPC_TT_PHYDEVNAM for DVI$_TT_PHYDEVNAM.
0000     76 ;
0000     77 ;       V03-014 CWH3014          CW Hobbs                28-Feb-1984
0000     78 ;               Fix accvio when DVI$_VOLSETMEM item is directed at a non-mounted
0000     79 ;               device.  Add special routine to get DVI$_FREEBLOCKS for XQP
0000     80 ;               disks, and several new routines for dual-pathed devices and
0000     81 ;               shadow sets.
0000     82 ;
0000     83 ;       V03-013 HH0002           Hai Huang               01-Feb-1984
0000     84 ;               Add job-wide mount support.
0000     85 ;
0000     86 ;       V03-012 TCM0002          Trudy C. Matthews       04-Jan-1984
0000     87 ;               Document relationship between invocations of DVI_ITEM_CODE
0000     88 ;               and DVI$_xxx item codes defined by $DVIDEF.  Add warning
0000     89 ;               to DVI_ITEM_CODE if this relationship is not preserved.
0000     90 ;
0000     91 ;       V03-011 KFH0006          Ken Henderson            9 Sep 1983
0000     92 ;               Add documentation about adding itemcodes.
0000     93 ;               Add SPC_DEVLOCKNAM, SPC_VOLSETMEM.
0000     94 ;
0000     95 ;       V03-010 KFH0005          Ken Henderson           30 Jul 1983
0000     96 ;               Removed debugging definitions
0000     97 ;
0000     98 ;       V03-009 TCM0001          Trudy C. Matthews       24-Jun-1983
0000     99 ;               Add SPC_ALLDEVNAM:
0000    100 ;
0000    101 ;       V03-008 DMW4040          DMWalp                  31-May-1983
0000    102 ;               Intergate new logical name structures.
0000    103 ;
0000    104 ;       V03-007 KFH0004          Ken Henderson           18 May 1983
0000    105 ;               Changed SPC_FULLDEVNAM to new spec.
0000    106 ;               Added HEXSTR datatype to macro.
0000    107 ;
0000    108 ;       V03-006 KFH0003          Ken Henderson           29 Apr 1983
0000    109 ;               Added SPC_FULLDEVNAM:
0000    110 ;
0000    111 ;       V03-005 KFH0002          Ken Henderson           11 Mar 1983
0000    112 ;               Made .WARN for undefined item-codes more
0000    113 ;               specific.
0000    114 ;
```

```
0000    115 ;
0000    116 ;       V03-004 CWH1002         CW Hobbs                1-Mar-1983
0000    117 ;               Add special item routines for DVI$_PID and DVI$_ACPPID
0000    118 ;
0000    119 ;       V03-003 KFH0001         Ken Henderson           23 Feb 1983
0000    120 ;               Changed name of module to SYSGETDVI.
0000    121 ;               Added DVI_ITEM_CODE macro to replace ITEM
0000    122 ;               and SPECIAL macros. Moved tables and code
0000    123 ;               YF$$SYSGETDVI psect.
0000    124 ;
0000    125 ;       V03-002 PHL0103         Peter H. Lipman         24-Jul-1982
0000    126 ;               Fix return status in IOSB to be SS$_CONCEALED if device
0000    127 ;               was concealed.  It was always being returned as SS$_NORMAL
0000    128 ;               unless their was an error.
0000    129 ;
0000    130 ;       V03-001 KDM0002         Kathleen D. Morse       28-Jun-1982
0000    131 ;               Added $DEVDEF, $PCBDEF, $PRDEF, and $PSLDEF.  Fix comment.
0000    132 ;
0000    133 ;**
```

```
0000    135 ;                   DEVO's GUIDE TO GETJPI/GETSYI/GETDVI
0000    136 ;                   ------------------------------------
0000    137 ;
0000    138 ;Overview
0000    139 ;--------
0000    140 ;
0000    141 ;These three system services are table-driven. The macro definition files
0000    142 ;that help define their tables are shared with DCL and the RTL. This results
0000    143 ;in new item-codes becoming useable with DCL's F$GETXXI lexical functions and
0000    144 ;the RTL's LIB$GETXXI routines automatically. Additionally, new SYSBOOT
0000    145 ;parameters become item-codes to the GETSYIs.
0000    146 ;
0000    147 ;The macro definition files are called JPITABLE.MAR, SYITABLE.MAR, and
0000    148 ;DVITABLE.MAR, and live in MASD$:<VMSLIB.SRC>. During a systembuild, they
0000    149 ;are inserted into the library SYS$LIBRARY:SYSBLDMLB.MLB. DCL and the RTL
0000    150 ;and SYS use this library to define their GETXXI tables. The system
0000    151 ;parameter file <SYS.SRC>SYSPARAM.MAR has also been conditionalized to be
0000    152 ;used to define GETSYI item-codes and is also inserted into SYSBLDMLB.MLB.
0000    153 ;
0000    154 ;
0000    155 ;NOTE:  SYSBLDMLB.MLB is a general macro library for holding macro
0000    156 ;       definitions that are shared between facilities, but will not
0000    157 ;       ship to the customer.
0000    158 ;
0000    159 ;
0000    160 ;When adding an item-code, at least two files need to be edited. One of the
0000    161 ;macro files listed above, as well as an SDL file that defines the 16-bit
0000    162 ;number which is the user-visible item-code. Also, if a SYSBOOT parameter is
0000    163 ;added, an SDL file needs to be updated to define the new GETSYI item-code.
0000    164 ;
0000    165 ;The GETDVI service actually uses only one table, but the GETSYI and GETJPI
0000    166 ;services use several. The JPITABLE file defines all the tables for GETJPI
0000    167 ;and the SYITABLE file defines all the tables for GETSYI. The different
0000    168 ;tables group the peices of data according to method of retrieval.
0000    169 ;
0000    170 ;In some cases, the peice of data to be returned by the service requires
0000    171 ;special processing to fetch, calculate, or format it before returning it.
0000    172 ;In these cases, the code of the system service needs to be enhanced.
0000    173 ;And if the data returned is a new format for DCL, the lexical function
0000    174 ;module of DCL may need to be enhanced as well. Possibly the RTL code may
0000    175 ;need enhancing as well.
```

```
0000   177
0000   178 ;The Macros
0000   179 ;----------
0000   180 ;
0000   181 ;A two-level scheme exists for defining the item tables used by the three
0000   182 ;services and the other facilities. A commonly defined macro (called
0000   183 ;JPI_GENERATE_TABLE, SYI_GENERATE_TABLE, or DVI_GENERATE_TABLE) contains
0000   184 ;multiple calls to a lower-level macro (called JPI_ITEM_CODE, SYI_ITEM_CODE,
0000   185 ;or DVI_ITEM_CODE) which actually defines each element in the table.
0000   186 ;While the _GENERATE_TABLE macros are commonly defined, the _ITEM_CODE macros
0000   187 ;are individually defined according to the needs of facility. (For instance,
0000   188 ;the LEXICON module must store the name of the item as an ASCIC string - in
0000   189 ;order to match it with the string supplied in the F$GETXXI function call;
0000   190 ;the other facilities need not store the item name in text.)
0000   191 ;
0000   192 ;When an item-code must be added, an additional call to the _ITEM_CODE macro
0000   193 ;must be added to the appropriate _GENERATE_TABLE macro. In the case of GETJPI
0000   194 ;and GETDVI, the _GENERATE_TABLE macro is defined in the JPITABLE and DVITABLE
0000   195 ;modules.  For GETDVI, an item-code definition must also be added to $DVIDEF.
0000   196 ;BE SURE THAT THE ORDER OF THE ITEM CODE DEFINITIONS IN $DVIDEF IS THE SAME AS
0000   197 ;THE ORDER OF INVOCATIONS OF DVI_ITEM_CODE IN DVITABLE.  The item-code number
0000   198 ;generated by $DVIDEF will be used as an index into DVI_ITEM_TABLE to locate
0000   199 ;the appropriate information about that item.
0000   200 ;
0000   201 ;The SYI_GENERATE_TABLE macro is defined by the SYSPARAM module
0000   202 ;- all the calls to the PARAMETER and PQL macros are 'collected' into the
0000   203 ;SYI_GENERATE_TABLE macro. When used in that mode (when GETSYISW is defined),
0000   204 ;the SYI_ITEMTABLES macro also becomes part of the SYI_GENERATE_TABLE macro.
0000   205 ;SYI_ITEMTABLES is defined in the SYITABLE module and contains all the calls
0000   206 ;to the SYI_ITEM_CODE macro that are Not related to SYSBOOT parameters.
0000   207 ;When GETSYISW is defined in SYSPARAM, the PARAMETER macro does not allocate
0000   208 ;or store memory, but rather passes some of the arguments to it on through via
0000   209 ;a call to SYI_ITEM_CODE. That is how all the calls to PARAMETER become calls
0000   210 ;to SYI_ITEM_CODE.
0000   211 ;
0000   212 ;The following is the situation that exists when the symbol GETSYISW is defined.
0000   213 ;The non-SYSBOOT items are defined by the macro SYI_ITEMTABLES in SYITABLE.MAR.
0000   214 ;The SYSBOOT items are defined by each invokation of the PARAMETER macro in
0000   215 ;SYSPARAM.MAR. Note that each invokation of the PQL macro in SYSPARAM.MAR
0000   216 ;invokes the PARAMETER macro twice. When GETSYISW is defined, the PARAMETER
0000   217 ;macro merely passes its arguments through to a call to the SYI_ITEM_CODE
0000   218 ;macro. The SYI_ITEM_CODE macro is locally defined as needed by the facility.
0000   219 ;
0000   220 ;+-------------------------------------------------------------------------+
0000   221 ;|                          SYI_GENERATE_TABLE                             |
0000   222 ;|   SYI_ITEMTABLES                                                        |
0000   223 ;|                                 |  PARAMETER  |              PQL        |
0000   224 ;|                                 |             |  PARAMETER  | PARAMETER |
0000   225 ;|                 |               |             |             |           |
0000   226 ;|SYI_ITEM_CODE|SYI_ITEM_CODE|SYI_ITEM_CODE|SYI_ITEM_CODE|SYI_ITEM_CODE|
0000   227 ;+-------------------------------------------------------------------------+
0000   228 ;\                              / \                                      /
0000   229 ; \                            /   \                                    /
0000   230 ;    FROM SYITABLE.MAR                  FROM SYSPARAM.MAR
0000   231 ;    (NON-SYSBOOT ITEMS)                 (SYSBOOT ITEMS)
```

```
0000   233          .SBTTL  DATA DECLARATIONS
0000   234
0000   235 ;
0000   236 ; System Services to Get Device Information
0000   237 ;
0000   238 ;       $GETDEV and $GETCHN are obsolete and frozen starting with V3
0000   239 ;       $GETDVI replaces them and all new items are only available
0000   240 ;               via this system service.
0000   241 ;
0000   242
0000   243 ;
0000   244 ; MACRO LIBRARY CALLS
0000   245 ;
0000   246
0000   247          $AQBDEF                        ; Define AQB offsets
0000   248          $CCBDEF                        ; Define CCB offsets
0000   249          $CDDBDEF                       ; Define CDDB offsets
0000   250          $DCDEF                         ; Define adapter type codes
0000   251          $DDBDEF                        ; Define DDB offsets
0000   252          $DEVDEF                        ; Define device type codes
0000   253          $DIBDEF                        ; Define DIB offsets
0000   254          $DVIDEF                        ; Define Device/Volume Information constants
0000   255          $JIBDEF                        ; Define Job Information Block offsets
0000   256          $LKIDEF                        ; Define Get lock info codes
0000   257          $LNMSTRDEF                     ; Define logical name structure offsets
0000   258          $MTLDEF                        ; Define Mount List entry offsets
0000   259          $ORBDEF                        ; Define Object's Rights Block offsets
0000   260          $PCBDEF                        ; Define Process Control Block offsets
0000   261          $PRDEF                         ; Define Processor Register numbers
0000   262          $PSLDEF                        ; Define Program Status Longword fields
0000   263          $RVTDEF                        ; Define RVT offsets
0000   264          $SBDEF                         ; Define SB offsets
0000   265          $SSDEF                         ; Define system status values
0000   266          $TTDEF                         ; Define terminal DEVDEPEND bits
0000   267          $TT2DEF                        ; Define terminal DEVDEPND2 bits
0000   268          $TTYUCBDEF                     ; Define terminal UCB offsets
0000   269          $UCBDEF                        ; Define UCB offsets
0000   270          $VCBDEF                        ; Define VCB offsets
0000   271
0000   272 ;
0000   273 ; LOCAL MACROS
0000   274 ;
0000   275 ; Generate device information control table - $GETDEV and $GETCHN only
0000   276 ;
0000   277
0000   278          .MACRO  GENTAB OFFSET,LENGTH
0000   279          .BYTE   LENGTH
0000   280          .ENDM   GENTAB
0000   281
0000   282 ;
0000   283 ; Generate field definitions for item value long word
0000   284 ;
0000   285          .MACRO  DVIBITS NAME,SIZE
0000   286          DVI_V_'NAME' = DVI_BIT
0000   287          DVI_S_'NAME' = SIZE
0000   288          DVI_BIT = DVI_BIT + SIZE
0000   289          .ENDM   DVIBITS
```

```
0000    290
0000    291 ;
0000    292 ; Generate the item-code table
0000    293 ;
0000    294         .MACRO  DVI_ITEM_CODE   NAME,-           ; of the item-code
0000    295                                 SPECIAL,-       ; flag
0000    296                                 SOURCE,-        ; of the data
0000    297                                 DTYPE,-         ; of returned value
0000    298                                 BITPOS,-        ; of bitfield data
0000    299                                 OUTLEN,-        ; of returned value
0000    300                                 STRUCT,-        ; where the data lives
0000    301                                 DEVTYP          ; flag
0000    302
0000    303         .IF NOT_DEFINED DVI$_'NAME
0000    304                 .WARN ; DVI$_'NAME IS NOT DEFINED IN STARDEFAE.SDL
0000    305         .IF_FALSE
0000    306                 .IF NE  ITEM_CODE-DVI$_'NAME
0000    307                         .WARN ; DEFINITION FOR ITEM CODE 'NAME IS OUT OF ORDER
0000    308                 .ENDC
0000    309         .ENDC
0000    310
0000    311         ITEM_CODE = ITEM_CODE + 2
0000    312
0000    313         .IF IDENTICAL <SPECIAL><T>
0000    314
0000    315         .ADDRESS        SPC_'NAME'
0000    316
0000    317         .IF_FALSE       ; IDENTICAL <SPECIAL><T>
0000    318
0000    319         .IF DIFFERENT <SPECIAL><F>
0000    320         .WARN ; ERROR INVOKING DVI_ITEM_CODE FOR DVI$_'NAME
0000    321         .ENDC   ; DIFFERENT <SPECIAL><F>
0000    322
0000    323         XTYPE = DVI_C_VALUE
0000    324         .IIF IDENTICAL <DTYPE><HEXNUM>, XTYPE = DVI_C_VALUE
0000    325         .IIF IDENTICAL <DTYPE><DECNUM>, XTYPE = DVI_C_VALUE
0000    326         .IIF IDENTICAL <DTYPE><PRVMSK>, XTYPE = DVI_C_VALUE
0000    327         .IIF IDENTICAL <DTYPE><PRTMSK>, XTYPE = DVI_C_VALUE
0000    328         .IIF IDENTICAL <DTYPE><HEXSTR>, XTYPE = DVI_C_VALUE
0000    329         .IIF IDENTICAL <DTYPE><PADSTR>, XTYPE = DVI_C_VALUE
0000    330         .IIF IDENTICAL <DTYPE><CNTSTR>, XTYPE = DVI_C_CSTRING
0000    331         .IIF IDENTICAL <DTYPE><STRDSC>, XTYPE = DVI_C_VALUE
0000    332         .IIF IDENTICAL <DTYPE><BITVEC>, XTYPE = DVI_C_VALUE
0000    333         .IIF IDENTICAL <DTYPE><BITVAL>, XTYPE = DVI_C_BOOLEAN
0000    334         .IIF IDENTICAL <DTYPE><STDUIC>, XTYPE = DVI_C_VALUE
0000    335         .IIF IDENTICAL <DTYPE><STDTIM>, XTYPE = DVI_C_VALUE
0000    336         .IIF IDENTICAL <DTYPE><ACPTYP>, XTYPE = DVI_C_VALUE
0000    337
0000    338         .IF IDENTICAL <STRUCT><RVT>
0000    339         OFFVAL  = DVI_C_'SOURCE'
0000    340         .IF FALSE
0000    341         OFFVAL  = 'STRUCT'$'SOURCE'
0000    342         .ENDC
0000    343
0000    344         .LONG   <OFFVAL@DVI_V_OFFSET> ! -
0000    345                 <'OUTLEN'@DVI_V_BYTCNT> ! -
0000    346                 <DVI_C_'STRUCT'@DVI_V_STRUCT> ! -
```

```
                     0000   347                <XTYPE@DVI_V_DATATYPE> ! -
                     0000   348                <DVI_C_'DEVTYP'@DVI_V_DEVTYPE> ! -
                     0000   349                <'BITPOS'@DVI_V_POSIT>
                     0000   350
                     0000   351          .ENDC   ; IF_FALSE IDENTICAL <SPECIAL><T>
                     0000   352
                     0000   353          .ENDM   DVI_ITEM_CODE
                     0000   354
                     0000   355 ;
                     0000   356 ; LOCAL SYMBOLS
                     0000   357 ;
                     0000   358 ; $GETDEV, $GETCHN Argument List Offset Definitions
                     0000   359 ;
                     0000   360
00000004             0000   361          CHAN_DEVNAM=4                   ; I/O channel number
                     0000   362                                          ; Device name descriptor
00000008             0000   363          PRILEN=8                        ; Address to store length of primary string
0000000C             0000   364          PRIBUF=12                       ; Address of primary buffer descriptor
00000010             0000   365          SCDLEN=16                       ; Address to store length of secondary strin
00000014             0000   366          SCDBUF=20                       ; Address of secondary buffer descriptor
                     0000   367 ;
                     0000   368 ; Bit Field Definititions for Item Value long word
                     0000   369 ;
00000000             0000   370          DVI_BIT = 0
                     0000   371          DVIBITS OFFSET,10               ; Offset in specified data structure
                     0000   372          DVIBITS BYTCNT,9                ; Size of item in bytes
                     0000   373          DVIBITS STRUCT,3                ; Structure (UCB, VCB)
                     0000   374          DVIBITS DATATYPE,3              ; Type of data item
                     0000   375          DVIBITS DEVTYPE,1               ; Device to which item is specific
                     0000   376          DVIBITS POSIT,5                 ; Bit position of BITVAL dtype
                     0000   377          DVIBITS SPCLFLG,1               ; THIS BIT MUST BE BIT 31!!!
                     0000   378 ;
                     0000   379 ; Datatype symbols for $GETDVI
                     0000   380 ;
00000000             0000   381          DVI_C_VALUE = 0                 ; Binary Value
00000001             0000   382          DVI_C_CSTRING = 1               ; Counted String
00000002             0000   383          DVI_C_BOOLEAN = 2               ; Bit value
                     0000   384 ;
                     0000   385 ; Mount type codes for SPC_DEVLOCKNAM
                     0000   386 ;
00000001             0000   387          DVI_K_PRIVATE = 1
00000002             0000   388          DVI_K_SHAREABLE = 2
                     0000   389
                     0000   390 ;
                     0000   391 ; Structure code symbols for $GETDVI
                     0000   392 ;
00000000             0000   393          DVI_C_UCB = 0                   ; Unit Control Block
00000001             0000   394          DVI_C_DDB = 1                   ; Device Data Block
00000002             0000   395          DVI_C_VCB = 2                   ; Volume Control Block
00000003             0000   396          DVI_C_RVT = 3                   ; Relative Volume Table
00000004             0000   397          DVI_C_AQB = 4                   ; ACP Queue Header Block
00000005             0000   398          DVI_C_ORB = 5                   ; Object's Rights Block
                     0000   399 ;
                     0000   400 ; Device type codes for $GETDVI
                     0000   401 ;
00000000             0000   402          DVI_C_ANY = 0                   ; Any device
00000001             0000   403          DVI_C_DISK = 1                  ; Disk only
```

```
                     0000   404 ;
                     0000   405 ; Relative Volume Table Item Sub Codes for $GETDVI - in OFFSET field
                     0000   406 ;
00000000             0000   407         DVI_C_VOLCOUNT = 0                  ; Count of volumes in volume set
00000001             0000   408         DVI_C_ROOTDEVNAM = 1                ; Device name for first volume in vol set
00000002             0000   409         DVI_C_NEXTDEVNAM = 2                ; Device name for next volume in  vol set
                     0000   410 ;
                     0000   411 ; Local Storage Offsets
                     0000   412 ;
                     0000   413         $OFFSET 0,NEGATIVE,<-
                     0000   414         <PRIMARY_UCB,16>, -                 ; Primary UCB/VCB, Secondary UCB/VCB
                     0000   415         <CURRENT_UCB,8>, -                  ; Current UCB/VCB
                     0000   416         RETLEN_ADR,-                        ; Address to return length
                     0000   417         SCRATCH,-                           ; Scratch storage - 4 bytes ONLY
                     0000   418         KRP,-                               ; Address of allocated KRP
                     0000   419         <SCRATCH_SIZE,0>, -                 ; Size of local storage
                     0000   420         STATUS, -                           ; Returned Success Status
                     0000   421         SAVED_ASTADR, -                     ; Saved ASTADR parameter
                     0000   422         IOUNLOCK, -                         ; Need to unlock I/O data base if LBS
                     0000   423         >
                     FFF0           PRIMARY_UCB:
                     FFE8           CURRENT_UCB:
                     FFE4           RETLEN_ADR:
                     FFE0           SCRATCH:
                     FFDC           KRP:
                     FFDC           SCRATCH_SIZE:
                     FFD8           STATUS:
                     FFD4           SAVED_ASTADR:
                     FFD0           IOUNLOCK:
FFFFFFDA             0000   424         RETLEN = STATUS+2                   ; Return length $GETDEV, $GETCHN
FFFFFFF4             0000   425         PRIMARY_VCB = PRIMARY_UCB+4         ; Primary VCB address
FFFFFFF8             0000   426         SECONDARY_UCB = PRIMARY_UCB+8       ; Seconday UCB address
FFFFFFFC             0000   427         SECONDARY_VCB = PRIMARY_UCB+12      ; Secondary VCB address
FFFFFFEC             0000   428         CURRENT_VCB = CURRENT_UCB+4         ; Current VCB address
                     0000   429 ;
                     0000   430 ; The following ASSUMES guarantee the consistency of the ACP type
                     0000   431 ; definition in $AQBDEF and the user visible constants in $DVIDEF
                     0000   432 ;
                     0000   433         ASSUME  AQB$K_F11V1 EQ DVI$C_ACP_F11V1 ; FILES-11 STRUCTURE LEVEL 1
                     0000   434         ASSUME  AQB$K_F11V2 EQ DVI$C_ACP_F11V2 ; FILES-11 STRUCTURE LEVEL 2
                     0000   435         ASSUME  AQB$K_MTA EQ DVI$C_ACP_MTA ; MAGTAPE
                     0000   436         ASSUME  AQB$K_NET EQ DVI$C_ACP_NET ; NETWORKS
                     0000   437         ASSUME  AQB$K_REM EQ DVI$C_ACP_REM ; REMOTE I/O
                     0000   438         ASSUME  AQB$K_JNL EQ DVI$C_ACP_JNL ; JOURNAL
                     0000   439
                     0000   440 ;
                     0000   441 ; LOCAL DATA
                     0000   442 ;
                     0000   443 ; Device Information Control Table - $GETDEV, $GETCHN
                     0000   444 ;
                     0000   445
                00000000    446         .PSECT  YF$$SYSGETDVI
                     0000   447 DEVTAB:                                      ;
                     0000   448         GENTAB  L_DEVCHAR,4                 ; Device characteristics
                     0001   449         GENTAB  B_DEVCLASS,1                ; DEVCLASS - Device Class
                     0002   450         GENTAB  B_DEVTYPE,1                 ; DEVTYPE - Device Type
                     0003   451         GENTAB  W_DEVBUFSIZ,2               ; DEVBUFSIZ - buffer size
```

```
                     0004   452          GENTAB  L_DEVDEPEND,4           ; DEVDEPEND - device dependent info
                     0005   453          GENTAB  W_UNIT,<2+2>            ; Device unit number
                     0006   454                                          ; DIB$W_DEVNAMOFF <-- 0
                     0006   455          GENTAB  L_PID,4                 ; Device owner process identification
                     0007   456          GENTAB  L_OWNUIC,4              ; Device owner user identification code
                     0008   457          GENTAB  W_VPROT,2               ; Device protection mask
                     0009   458          GENTAB  W_ERRCNT,2              ; Device error count
                     000A   459          GENTAB  L_OPCNT,<4+2>           ; Device operations complete count
                     000B   460                                          ; DIB$W_VOLNAMOFF <-- 0
                     000B   461          GENTAB  W_RECORDSZ,2            ; Blocked Record Size
                B4   000C   462          .BYTE   -DIB$L_MAXBLOCK+DIB$T_DEVNAME ; Skip over string area
                     000D   463          GENTAB  L_MAXBLOCK,4            ; Disk size in blocks
                00   000E   464          .BYTE   0                       ; End of table
                     000F   465 ;
                     000F   466 ;*****************************************
                     000F   467 ;
                     000F   468 ;       GENERATE THE ITEM-CODE TABLE
                     000F   469 ;
                     000F   470 ;*****************************************
                     000F   471 ;
                     000F   472 DVI_ITEM_TABLE:
                     000F   473
                     000F   474          ; Index 0 is not used by EXE$GETDVI
                     000F   475          ;
            00000000 000F   476          .LONG   0
                     0013   477
            00000002 0013   478          ITEM_CODE = 2
                     0013   479
                     0013   480          DVI_GENERATE_TABLE
                     025F   481
            00000127 025F   482          MAX_ITEM_CODE = <<.-DVI_ITEM_TABLE>/2>-1
```

```
                     025F    484          .SBTTL  $GETCHN - Get Channel Information
                     025F    485 ;+
                     025F    486 ; EXE$GETCHN - Get channel information
                     025F    487 ;
                     025F    488 ; This service provides the capability to retrieve information about a
                     025F    489 ; device that is assigned to a channel and its associated device if any.
                     025F    490 ;
                     025F    491 ; INPUTS:
                     025F    492 ;
                     025F    493 ;       CHAN(AP) = I/O channel number.
                     025F    494 ;       PRILEN(AP) = Address to store length of primary device information.
                     025F    495 ;       PRIBUF(AP) = Address of primary buffer descriptor.
                     025F    496 ;       SCDLEN(AP) = Address to store length of secondary device information.
                     025F    497 ;       SCDBUF(AP) = Address of secondary buffer descriptor.
                     025F    498 ;
                     025F    499 ;       R4 = Current process PCB address.
                     025F    500 ;
                     025F    501 ; OUTPUTS:
                     025F    502 ;
                     025F    503 ;       R0 low bit clear indicates failure to retrieve device information.
                     025F    504 ;
                     025F    505 ;               R0 = SS$_ACCVIO - primary or secondary buffer descriptor
                     025F    506 ;                    cannot be read by calling access mode, or primary
                     025F    507 ;                    buffer, primary buffer length, secondary buffer, or
                     025F    508 ;                    secondary buffer length cannot be written by calling
                     025F    509 ;                    access mode.
                     025F    510 ;
                     025F    511 ;               R0 = SS$_IVCHAN - invalid channel number specified.
                     025F    512 ;
                     025F    513 ;               R0 = SS$_NOPRIV - specified channel is not assigned to a
                     025F    514 ;                    device or the calling access mode does not have
                     025F    515 ;                    privilege to access the channel.
                     025F    516 ;
                     025F    517 ;       R0 low bit set indicates successful completion.
                     025F    518 ;
                     025F    519 ;               R0 = SS$_BUFFEROVF - normal completion, all characteristic
                     025F    520 ;                    information did not fit in specified buffer(s).
                     025F    521 ;
                     025F    522 ;               R0 = SS$_NORMAL - normal completion, all characteristic
                     025F    523 ;                    information transfered.
                     025F    524 ;-
                     025F    525
                00000000     526          .PSECT  Y$EXEPAGED
                     0000    527
                OFFC 0000    528          .ENTRY  EXE$GETCHN,^M<R2,R3,R4,R5,R6,R7,R8,R9,R10,R11>
51   098F'CF     9E  0002    529          MOVAB   W^DVI_USE_CHAN,R1       ; Use channel parameter
      0255'      31  0007    530          BRW     EXE_GETDEV              ; Join GETDEV code
```

```
                                .SBTTL  $GETDEV - Get Device Information
                        ;+
                        ; EXE$GETDEV - Get device information
                        ;
                        ; This service provides the capability to retrieve information about a
                        ; device and its associated device if any.
                        ;
                        ; INPUTS:
                        ;
                        ;       DEVNAM(AP) = Address of device name descriptor.
                        ;       PRILEN(AP) = Address to store length of primary device information.
                        ;       PRIBUF(AP) = Address of primary buffer descriptor.
                        ;       SCDLEN(AP) = Address to store length of secondary device information.
                        ;       SCDBUF(AP) = Address of secondary buffer descriptor.
                        ;
                        ;       R4 = Current process PCB address.
                        ;
                        ; OUTPUTS:
                        ;
                        ;       R0 low bit clear indicates failure to retrieve device information.
                        ;
                        ;               R0 = SS$_ACCVIO - Device name string, device name string
                        ;                    descriptor, primary buffer descriptor, or secondary
                        ;                    buffer descriptor cannot be read by calling access
                        ;                    mode, or primary buffer, primary buffer length,
                        ;                    secondary buffer, or secondary buffer length cannot
                        ;                    be written by calling access mode.
                        ;
                        ;               R0 = SS$_IVDEVNAM - Device name string contains invalid
                        ;                    characters, or no device device name string descriptor
                        ;                    specified.
                        ;
                        ;               R0 = SS$_IVLOGNAM - Zero or greater than maximum length device
                        ;                    name string specified.
                        ;
                        ;               R0 = SS$_NONLOCAL - Device exists on a remote system.
                        ;
                        ;               R0 = SS$_NOSUCHDEV - Specified device does not exist on host
                        ;                    system.
                        ;
                        ;       R0 low bit set indicates successful completion.
                        ;
                        ;               R0 = SS$_BUFFEROVF - Normal completion, all characteristic
                        ;                    information did not fit in specified buffer(s).
                        ;
                        ;               R0 = SS$_NORMAL - Normal completion, all characteristic
                        ;                    information transfered.
                        ;-
                        
                  0FFC  000A    .ENTRY  EXE$GETDEV,^M<R2,R3,R4,R5,R6,R7,R8,R9,R10,R11>
51    09B3'CF    9E   000C    MOVAB   W^DVI_USE_DEVNAM,R1      ; Use device name descriptor
        024B'    31   0011    BRW     EXE_GETDEV
                      0014
                  0000025F    .PSECT  YF$$SYSGETDVI
                      025F    ;
                      025F    ; R1 = address of USE_CHAN or USE_DEVNAM entry point
                      025F    ;
```

```
                     025F   589          .ENABLE LSB
                     025F   590
                     025F   591 EXE_GETDEV:
5E   D8 AE   DE     025F   592          MOVAL   SCRATCH_SIZE-4(SP),SP   ; Reserve scratch storage
                     0263   593                                         ; include uninitialized return status
        7E   7C      0263   594          CLRQ    -(SP)                  ; Init SAVED_ASTADR and IOUNLOCK flag
                     0265   595 ;
                     0265   596 ; The above stack locations are all referenced by offsets from FP
                     0265   597 ;
50   04 AC   D0      0265   598          MOVL    CHAN_DEVNAM(AP),R0     ; Get CHAN or DEVNAM parameter
        61   16      0269   599          JSB     (R1)                   ; Set up UCB's to be used
     1F 50   E9      026B   600          BLBC    R0,40$                 ; Branch if error
D8 AD   01   D0      026E   601          MOVL    #SS$_NORMAL,STATUS(FP) ; Init normal success status
                     0272   602                                         ; Overwrite possible SS$_CONCEALED
        59   D4      0272   603          CLRL    R9                     ; Primary device items
57   08 AC   7D      0274   604          MOVQ    PRILEN(AP),R7          ; Get primary buffer parameters
        21   10      0278   605          BSBB    FILBUF                 ; Fill primary buffer
     10 50   E9      027A   606          BLBC    R0,40$                 ; Branch if error
   59   01   D0      027D   607          MOVL    #1,R9                  ; Secondary device items
57   10 AC   7D      0280   608          MOVQ    SCDLEN(AP),R7          ; Get secondary buffer parameters
        15   10      0284   609          BSBB    FILBUF                 ; Fill secondary buffer
     04 50   E9      0286   610          BLBC    R0,40$                 ; Branch if error
50   D8 AD   3C      0289   611 30$:     MOVZWL  STATUS(FP),R0          ; Get normal or overflow status to return
  01 D0 AD   E8      028D   612 40$:     BLBS    IOUNLOCK(FP),50$       ; Branch if must unlock I/O data base
        04   0291   613          RET
00000000'GF   17     0292   614 50$:     JMP     G^IOC$UNLOCK           ; Unlock I/O database and return
                     0298   615
                     0298   616          .DSABL  LSB
                     0298   617
                     0298   618 ;
                     0298   619 ; Subroutine to fill characteristic buffer
                     0298   620 ;
                     0298   621 ; INPUTS:
                     0298   622 ;
                     0298   623 ;       R7 = Address to return length of data stored
                     0298   624 ;       R8 = Descriptor of DIB buffer
                     0298   625 ;       R9 = 0 if getting primary characteristics
                     0298   626 ;          = 1 if getting secondary characteristics
                     0298   627 ;
                     0298   628 ; OUTPUTS:
                     0298   629 ;
                     0298   630 ;       R0 = Status
                     0298   631 ;       R1 through R11 altered
                     0298   632 ;
                     0298   633 ACCVIO_1:
        00B3   31    0298   634          BRW     ACCVIO
          58   D5    029B   635 FILBUF: TSTL    R8                     ; Any buffer specified?
          03   12    029D   636          BNEQ    5$                     ; Branch if yes
        00A8   31    029F   637          BRW     160$                   ; No, nothing to do
E8 AD   F0 AD49   7D 02A2   638 5$:      MOVQ    PRIMARY_UCB(FP)[R9],CURRENT_UCB(FP) ; Set current UCB/VCB address
     E4 AD   57   D0 02A8   639          MOVL    R7,RETLEN_ADR(FP)      ; Save address for return length
                     02AC   640          IFNORD  #8,(R8),ACCVIO_1       ; ACCVIO if cannot read out buf decriptor
     57   04 A8   D0 02B2   641          MOVL    4(R8),R7               ; Get the address
        56   68   3C 02B6   642          MOVZWL  (R8),R6                ; and the size of the buffer
                     02B9   643          ASSUME  DIB$K_LENGTH LE 512
   0074 8F   56   B1 02B9   644          CMPW    R6,#DIB$K_LENGTH       ; If buffer is larger than needed
          08   1E    02BE   645          BGEQU   20$                    ; then use the maximum size for probe
```

```
                D8 AD    0601 8F    B0   02C0   646          MOVW    #SS$_BUFFEROVF,STATUS(FP) ; Record buffer overflow status
                          04 11     02C6   647          BRB     30$
                     56    74 8F    9A   02C8   648 20$:     MOVZBL  #DIB$K_LENGTH,R6          ; Actual size of data to be returned
                     DA AD    56    B0   02CC   649 30$:     MOVW    R6,RETLEN(FP)             ; Remember how much data will be returned
                                     02D0   650           IFNOWRT R6,(R7),ACCVIO            ; Can entire buffer be written?
                   5B    FD26 CF    DE   02D6   651          MOVAL   W^DEVTAB,R11              ; Address of item lengths
                          58 D4     02DB   652          CLRL    R8                        ; No item return length
                          7E 56 7D  02DD   653          MOVQ    R6,-(SP)                  ; Save DIB descriptor
                          56 DD     02E0   654          PUSHL   R6                        ; Scratch copy of length
                          5A 8B 98  02E2   655 40$:     CVTBL   (R11)+,R10                ; Length of buffer for next item
                          07 14     02E5   656          BGTR    50$                       ; Branch if item to move
                          1D 13     02E7   657          BEQL    90$                       ; Branch if end of table
                          5A 5A CE  02E9   658          MNEGL   R10,R10                   ; Skip over section of DIB
                          10 11     02EC   659          BRB     70$
                          59 02 C0  02EE   660 50$:     ADDL    #2,R9                     ; Next item code
                          6E 5A D1  02F1   661          CMPL    R10,(SP)                  ; Enough room for this item?
                          05 15     02F4   662          BLEQ    60$                       ; Branch if yes
                          5A 6E D0  02F6   663          MOVL    (SP),R10                  ; No, use what space is left
                          0B 15     02F9   664          BLEQ    90$                       ; All done if no space left
                        018A 30     02FB   665 60$:     BSBW    DVI_DO_ITEM               ; Put the next item in the DIB
                          57 5A C0  02FE   666 70$:     ADDL    R10,R7                    ; Next free location in DIB
                          6E 5A C2  0301   667          SUBL    R10,(SP)                  ; Adjust space left in DIB
                          DC 14     0304   668          BGTR    40$                       ; Branch if room for another item
                                    0306   669 ;
                                    0306   670 ; The DIB is now filled in except for the device controller name string
                                    0306   671 ; and the volume name string and their respective offset locations.
                                    0306   672 ; DIB$W_DEVNAMOFF and DIB$W_VOLNAMOFF are currently 0.  The string area
                                    0306   673 ; is deliberately NOT backgrounded so that no data is written except that
                                    0306   674 ; which is explicitly returned.
                                    0306   675 ;
                        00E0 8F     BA 0306   676 90$:     POPR    #^M<R5,R6,R7>             ; Clean off scratch cell,
                                       030A   677                                           ; recover DIB descriptor
                          56 24     A2 030A   678          SUBW    #DIB$T_DEVNAME,R6         ; Room for CTLNAM and VOLNAM string
                             2B     15 030D   679          BLEQ    150$                      ; Branch if no room for strings
                       53    24     A7 030F   680          MOVAL   DIB$T_DEVNAME(R7),R3      ; Starting adr in DIB for strings
                       55    E8     AD 0313   681          MOVL    CURRENT_UCB(FP),R5        ; Address of UCB
                55     28 A5        14 0317   682          ADDL3   #DDB$T_NAME,UCB$L_DDB(R5),R5 ; Address of ASCIC controller name
                          54 85     9A 031C   683          MOVZBL  (R5)+,R4                  ; Size in R4, adr in R5
                             06     13 031F   684          BEQL    110$                      ; Branch if controller name null
                       58    0E     A7 0321   685          MOVAL   DIB$W_DEVNAMOFF(R7),R8    ; Address to store offset to string
                             2B     10 0325   686          BSBB    MOVE_NAME                 ; Move the name, set up the offset
                       55    EC     AD 0327   687 110$:    MOVL    CURRENT_VCB(FP),R5        ; Address of VCB
                             0D     13 032B   688          BEQL    150$                      ; Branch if volume not mounted
                       55    14     A5 032D   689          MOVAL   VCB$T_VOLNAME(R5),R5      ; Adr of 12 byte blank filled volume name
                          54 0C     D0 0331   690          MOVL    #12,R4                    ; Size of name string
                       58    20     A7 0334   691          MOVAL   DIB$W_VOLNAMOFF(R7),R8    ; Address to store offset to string
                             18     10 0338   692          BSBB    MOVE_NAME                 ; Move the name, set up the offset
                                       033A   693 ;
                                       033A   694 ; DIB is now totally filled in, return length to caller if requested
                                       033A   695 ;
                          50 E4 AD   D0 033A   696 150$:    MOVL    RETLEN_ADR(FP),R0         ; Address to return DIB length
                             0A     13 033E   697          BEQL    160$                      ; Branch if none specified
                                       0340   698          IFNOWRT #2,(R0),ACCVIO            ; Branch if length cannot be written
                          60 DA AD   B0 0346   699          MOVW    RETLEN(FP),(R0)           ; Return the DIB length
                             50 01   3C 034A   700 160$:    MOVZWL  #SS$_NORMAL,R0            ; Set successful completion
                                    05 034D   701          RSB
                                       034E   702 ACCVIO:
```

```
                50   0C   3C   034E   703          MOVZWL  #SS$_ACCVIO,R0          ; Access violation
                          05   0351   704          RSB
                               0352   705 ;
                               0352   706 ; Move name string and fill in DIB offset to it
                               0352   707 ;
                               0352   708 ; INPUTS:
                               0352   709 ;
                               0352   710 ;       R3 = Address to store data
                               0352   711 ;       R4 = Byte count to store
                               0352   712 ;       R5 = Source string to store
                               0352   713 ;       R6 = Count of bytes remaining in output buffer
                               0352   714 ;       R7 = Base address of DIB
                               0352   715 ;       R8 = Address to store offset to string
                               0352   716 ;
                               0352   717 ; OUTPUTS:
                               0352   718 ;
                               0352   719 ;       R3 = Updated address to store next string
                               0352   720 ;       R6 = Updated space remaining to store next string
                               0352   721 ;       R0 through R5 altered
                               0352   722 ;       Other registers preserved
                               0352   723 ;
                               0352   724 MOVE_NAME:
                     56   D7   0352   725          DECL    R6                      ; Room for byte count for string
                     19   19   0354   726          BLSS    20$                     ; Branch if not, don't store offset
                50   53   57   C3   0356   727          SUBL3   R7,R3,R0                ; Offset to string
                     68   50   B0   035A   728          MOVW    R0,(R8)                 ; Store offset in DIB
                     83   54   90   035D   729          MOVB    R4,(R3)+                ; Store count for ASCIC string
                     56   54   D1   0360   730          CMPL    R4,R6                   ; Enough room for rest of string?
                     03   15   0363   731          BLEQ    10$                     ; Branch if yes
                     54   56   D0   0365   732          MOVL    R6,R4                   ; No, use what is left
                     56   54   C2   0368   733 10$:     SUBL    R4,R6                   ; Keep track of space remaining
                63   65   54   28   036B   734          MOVC3   R4,(R5),(R3)            ; Store the string
                          05   036F   735 20$:     RSB
```

```
0370   737          .SBTTL  $GETDVI - Get Device Information
0370   738 ;++
0370   739 ;
0370   740 ; FUNCTIONAL DESCRIPTION:
0370   741 ;
0370   742 ;       This service allows a process to get information about a device
0370   743 ;       it currently has a channel assigned to, or one it explicitly names.
0370   744 ;
0370   745 ; CALLING SEQUENCE:
0370   746 ;
0370   747 ;       CALLS/CALLG
0370   748 ;
0370   749 ; INPUTS:
0370   750 ;
0370   751 ;       EFN(AP)    = number of the event flag to set when all of the requested
0370   752 ;                    data is valid.
0370   753 ;       CHAN(AP)   = channel to which desired device is assigned or 0
0370   754 ;                    if specifying device by name.
0370   755 ;       DEVNAM(AP) = address of a string descriptor for the device name
0370   756 ;                    or logical device name desired.  This is only used
0370   757 ;                    if the channel parameter is 0.
0370   758 ;       ITMLST(AP) = address of a list of item descriptors of the form:
0370   759 ;
0370   760 ;                  +------------------------------+
0370   761 ;                  !  ITEM CODE   !  BUF. LENGTH  !
0370   762 ;                  +------------------------------+
0370   763 ;                  !      BUFFER ADDRESS          !
0370   764 ;                  +------------------------------+
0370   765 ;                  !  ADDRESS TO RETURN LENGTH    !
0370   766 ;                  +------------------------------+
0370   767 ;
0370   768 ;       IOSB(AP)   = address of a quadword I/O status block to receive final
0370   769 ;                    status
0370   770 ;       ASTADR(AP) = address of an AST routine to be called when all of the
0370   771 ;                    requested data has been supplied.
0370   772 ;       ASTPRM(AP) = 32 bit ast parameter
0370   773 ;       NULARG(AP) = Reserved argument - address of a buffer descriptor
0370   774 ;                    for wild device context.
0370   775 ;
0370   776 ;       R4 = Current process PCB address
0370   777 ;
0370   778 ; IMPLICIT INPUTS:
0370   779 ;
0370   780 ;       none
0370   781 ;
0370   782 ; OUTPUTS:
0370   783 ;
0370   784 ;       none
0370   785 ;
0370   786 ; IMPLICIT OUTPUTS:
0370   787 ;
0370   788 ;       none
0370   789 ;
0370   790 ; ROUTINE VALUE:
0370   791 ;
0370   792 ;       R0 low bit clear indicates failure to retrieve device information
0370   793 ;
```

```
                    0370  ;               R0 = SS$_ACCVIO - Device name string descriptor, device
                    0370  ;                       name string, or ITMLST cannot be read by the
                    0370  ;                       calling access mode.  Item buffer or return
                    0370  ;                       length word cannot be written by the calling
                    0370  ;                       access mode.
                    0370  ;
                    0370  ;               R0 = SS$_IVCHAN - Invalid channel number specified
                    0370  ;
                    0370  ;               R0 = SS$_IVDEVNAM - Device name string contains invalid
                    0370  ;                       characters, or no device name string was
                    0370  ;                       specified and no channel number was specified.
                    0370  ;
                    0370  ;               R0 = SS$_IVLOGNAM - Zero or greater than maximum length
                    0370  ;                       device name string specified.
                    0370  ;
                    0370  ;               R0 = SS$_NONLOCAL - Device exists on a remote system
                    0370  ;
                    0370  ;               R0 = SS$_NOSUCHDEV - Specified device does not exist on
                    0370  ;                       host system
                    0370  ;
                    0370  ;               R0 = SS$_BADPARAM - An invalid item identifier was specified
                    0370  ;
                    0370  ;               R0 = SS$_EXASTLM - An AST was requested and the AST quota
                    0370  ;                       was exceeded.
                    0370  ;
                    0370  ;       R0 low bit set indicates successful completion.
                    0370  ;
                    0370  ;               R0 = SS$_NORMAL - Normal completion
                    0370  ;
                    0370  ; SIDE EFFECTS:
                    0370  ;
                    0370  ;       none
                    0370  ;--
                    0370
                    0370  ;
                    0370  ; Equated Symbols:
                    0370  ;
                    0370  ;       Argument List Offsets
                    0370  ;
                    0370
          00000004  0370          EFN = 4                         ; Event flag number argument
          00000008  0370          CHAN = 8                        ; Channel assigned to device or 0
          0000000C  0370          DEVNAM = 12                     ; Address of device name string descriptor
          00000010  0370          ITMLST = 16                     ; Address of item identifiers
          00000014  0370          IOSB = 20                       ; I/O status block address
          00000018  0370          ASTADR = 24                     ; AST routine address
          0000001C  0370          ASTPRM = 28                     ; AST parameter
          00000020  0370          NULARG = 32                     ; Reserved argument - wild context buf dsc
                    0370
                    0370
          00000014                .PSECT  Y$EXEPAGED
                    0014
              0FFC  0014          .ENTRY  EXE$GETDVI,^M<R2,R3,R4,R5,R6,R7,R8,R9,R10,R11>
       0357'   31   0016          BRW     EXE_GETDVI
                    0019
          00000370                .PSECT  YF$$SYSGETDVI
                    0370
```

```
                        0370   851          .ENABL  LSB
                        0370   852
                        0370   853 EXE_GETDVI:
          5E   DC AE    DE   0370   854          MOVAL   SCRATCH_SIZE(SP),SP     ; Allocate local storage
               DC AD    D4   0374   855          CLRL    KRP(FP)                 ; Initially no KRP is allocated
                  01    DD   0377   856          PUSHL   #SS$_NORMAL             ; Set presumed normal success status
                  7E    7C   0379   857          CLRQ    -(SP)                   ; Zero SAVED_ASTADR and IOUNLOCK
                        037B   858 ;
                        037B   859 ; The above stack locations are all referenced by offsets from FP
                        037B   860 ;
          53   04 AC    9A   037B   861          MOVZBL  EFN(AP),R3              ; Get event flag number
    00000000'GF        16   037F   862          JSB     G^SCH$CLREF             ; Clear this event flag
                  26 50 E9   0385   863          BLBC    R0,DVI_ERROR            ; If error, exit with error status
          51   14 AC    D0   0388   864          MOVL    IOSB(AP),R1             ; Get IOSB address if specified
                  08    13   038C   865          BEQL    10$                     ; Branch in none specified
                        038E   866          IFNOWRT #8,(R1),DVI_ACCVIO      ; If not writable by caller then ACCVIO
                  61    7C   0394   867          CLRQ    (R1)                    ; Clear the IOSB
    D4 AD   18 AC    D0   0396   868 10$:     MOVL    ASTADR(AP),SAVED_ASTADR(FP) ; Save ASTADR parameter
                  05    13   039B   869          BEQL    20$                     ; Branch if none specified
                  38 A4 B5   039D   870          TSTW    PCB$W_ASTCNT(R4)        ; If AST limit is exceeded
                  13    15   03A0   871          BLEQ    DVI_EXASTLM             ; then indicate error
                        03A2   872 ;
                        03A2   873 ; See if Channel parmeter was specified
                        03A2   874 ;
          50   08 AC    3C   03A2   875 20$:     MOVZWL  CHAN(AP),R0             ; Fetch channel parameter if specified
                  19    13   03A6   876          BEQL    30$                     ; Branch if not specified
                 05E4   30   03A8   877          BSBW    DVI_USE_CHAN            ; Get UCB address from channel
                  1D 50 E8   03AB   878          BLBS    R0,40$                  ; Branch if no error
                        03AE   879 DVI_ERROR:
                  6F    11   03AE   880          BRB     DVI_ERROR_1
                        03B0   881 DVI_ACCVIO:
               50   0C    D0   03B0   882          MOVL    S^#SS$_ACCVIO,R0        ; Access violation
                  F9    11   03B3   883          BRB     DVI_ERROR
                        03B5   884 DVI_EXASTLM:
          50  2A04  8F    3C   03B5   885          MOVZWL  #SS$_EXASTLM,R0         ; Exceeded ASTLM quota
                  F2    11   03BA   886          BRB     DVI_ERROR
                        03BC   887 DVI_BADPARAM:
               50   14    3C   03BC   888          MOVZWL  #SS$_BADPARAM,R0        ; Bad parameter
                  ED    11   03BF   889          BRB     DVI_ERROR
                        03C1   890 ;
                        03C1   891 ; Use Device Name String parameter to locate desired device
                        03C1   892 ;
            50   0C AC    D0   03C1   893 30$:     MOVL    DEVNAM(AP),R0           ; Get the device name descriptor
                 05EB    30   03C5   894          BSBW    DVI_USE_DEVNAM          ; Get UCB using device name
                 E3 50   E9   03C8   895          BLBC    R0,DVI_ERROR            ; Branch if error
                        03CB   896 ;
                        03CB   897 ; I/O data base locked for reading
                        03CB   898 ;
            5B   10 AC    D0   03CB   899 40$:     MOVL    ITMLST(AP),R11          ; Address of list of items
                        03CF   900          IFNORD  #4,(R11),DVI_ACCVIO     ; Check first long word readable
            59   02 AB    3C   03D5   901 50$:     MOVZWL  2(R11),R9               ; Item code for next item
                  48    13   03D9   902          BEQL    DVI_COMPLETE            ; Done if zero, take normal exit
          0127 8F    59    B1   03DB   903          CMPW    R9,#MAX_ITEM_CODE       ; Valid item code?
                  DA    1A   03E0   904          BGTRU   DVI_BADPARAM            ; Branch if not
               01   59    D1   03E2   905          CMPL    R9,#1                   ; 0 and 1 are not used
                  D5    15   03E5   906          BLEQ    DVI_BADPARAM            ; Branch if bad item code
               51   8B    7E   03E7   907          MOVAQ   (R11)+,R1               ; R1 = R11 = Adr of item buf descriptor
```

```
                        03EA   908                                     ; R11 = R11 + 8
        00000000'GF   16 03EA   909             JSB     G^EXE$PROBEW_DSC        ; See if caller can read buf dsc
                        03F0   910                                     ; and write the buffer it describes
              BB 50   E9 03F0   911             BLBC    R0,DVI_ERROR            ; Branch if not
           57    52   D0 03F3   912             MOVL    R2,R7                   ; Save item buffer address
           5A    51   3C 03F6   913             MOVZWL  R1,R10                  ; and its size
           04    5A   D1 03F9   914             CMPL    R10,#4                  ; Item buffer at least 4 bytes?
                 BE   19 03FC   915             BLSS    DVI_BADPARAM            ; Branch if not
                        03FE   916             IFNORD  #8,(R11),DVI_ACCVIO     ; Check access to rest of this item
                        0404   917                                     ; and first long word of the next
           58    8B   D0 0404   918             MOVL    (R11)+,R8               ; R8 = Address to return length
                 06   13 0407   919             BEQL    60$                     ; Branch if return length not requested
                        0409   920             IFNOWRT #2,(R8),DVI_ACCVIO      ; Make sure caller can write this
50    59    01    00   EF 040F   921 60$:      EXTZV   #0,#1,R9,R0             ; Get primary/secondary flag
  E8 AD    F0 AD40   7D 0414   922             MOVQ    PRIMARY_UCB(FP)[R0],CURRENT_UCB(FP) ; Set current UCB/VCB
              006B   30 041A   923             BSBW    DVI_DO_ITEM             ; Process this item
                 B6   11 041D   924             BRB     50$                     ; Get next item
                        041F   925 ;
                        041F   926 ; R0 = error status
                        041F   927 ;
                        041F   928 DVI_ERROR_1:
           D8 AD   50   B0 041F   929             MOVW    R0,STATUS(FP)           ; Save error status
                        0423   930 ;
                        0423   931 ; Normal completion, saved status already set
                        0423   932 ;
                        0423   933 DVI_COMPLETE:
     54    00000000'9F   D0 0423   934             MOVL    @#CTL$GL_PCB,R4         ; Get PCB address
           09 D0 AD      E9 042A   935             BLBC    IOUNLOCK(FP),70$        ; Branch if no read lock to release
        00000000'GF      16 042E   936             JSB     G^SCH$IOUNLOCK          ; Unlock I/O data base
                        0434   937             SETIPL  #0                      ; Allow all interrupts
           51    60 A4   D0 0437   938 70$:      MOVL    PCB$L_PID(R4),R1        ; Get process's PID
                 52   D4 043B   939             CLRL    R2                      ; Set null priority increment
           53    04 AC   D0 043D   940             MOVL    EFN(AP),R3              ; Get event flag number to set
        00000000'GF      16 0441   941             JSB     G^SCH$POSTEF            ; Set the event flag
           51    14 AC   D0 0447   942             MOVL    IOSB(AP),R1             ; Get address of IOSB
                 0A   13 044B   943             BEQL    80$                     ; Branch if none
                        044D   944             IFNOWRT #8,(R1),80$             ; Check if writable
           61    D8 AD   B0 0453   945             MOVW    STATUS(FP),(R1)         ; Store completion status
           55    D4 AD   D0 0457   946 80$:      MOVL    SAVED_ASTADR(FP),R5     ; Get address of AST routine
                 15   13 045B   947             BEQL    90$                     ; Branch if none specified
                 54   DC 045D   948             MOVPSL  R4                      ; Get PSL
54    54    02    16   EF 045F   949             EXTZV   #PSL$V_PRVMOD,#PSL$S_PRVMOD,R4,R4 ; Extract previous mode
                        0464   950             $DCLAST_S (R5),ASTPRM(AP),R4    ; Queue the completion AST
           50    D8 AD   3C 0472   951 90$:      MOVZWL  STATUS(FP),R0           ; Return saved status
                        0476   952
           57    DC AD   D0 0476   953             MOVL    KRP(FP),R7              ; Retrieve address of allocated KRP
                 0B   13 047A   954             BEQL    100$                    ; Immediately return if no KRP allocated
     56    00000000'GF   9E 047C   955             MOVAB   G^CTL$GL_KRPFL,R6       ; Else retrieve address of KRP listhead
           04 B6    67   0E 0483   956             INSQUE  (R7),@4(R6)             ; and deallocate KRP to lookaside list
                    04   04 0487   957 100$:      RET                             ; Exit system service
                        0488   958             .DSABL  LSB
```

```
                        0488   960          .SBTTL  DVI_DO_ITEM - Validate and move desired item
                        0488   961
                        0488   962 ;++
                        0488   963 ;
                        0488   964 ; FUNCTIONAL DESCRIPTION:
                        0488   965 ;
                        0488   966 ;       Routine to validate item identifier and return the desired
                        0488   967 ;       information to the caller's buffer.
                        0488   968 ;
                        0488   969 ; CALLING SEQUENCE:
                        0488   970 ;
                        0488   971 ;       JSB/BSB
                        0488   972 ;
                        0488   973 ; INPUTS:
                        0488   974 ;
                        0488   975 ;       R7  = Address of buffer to return item - already probed
                        0488   976 ;       R8  = Address of buffer to return length - already probed
                        0488   977 ;             0 if not returning length
                        0488   978 ;       R9  = Item code
                        0488   979 ;       R10 = Size of buffer for item
                        0488   980 ;
                        0488   981 ; IMPLICIT INPUTS:
                        0488   982 ;
                        0488   983 ;       CURRENT_UCP(FP)    - Address of the UCB
                        0488   984 ;       CURRENT_VCB(FP)    - Address of the VCB
                        0488   985 ;       SCRATCH(FP)        - 4 bytes of scratch storage
                        0488   986 ;       KRP(FP)            - Address of allocated KRP, if any
                        0488   987 ;
                        0488   988 ; OUTPUTS:
                        0488   989 ;
                        0488   990 ;       none
                        0488   991 ;
                        0488   992 ; IMPLICIT OUTPUTS:
                        0488   993 ;
                        0488   994 ;       KRP(FP)            - Address of KRP if one is allocated
                        0488   995 ;
                        0488   996 ; ROUTINE VALUE:
                        0488   997 ;
                        0488   998 ;       none
                        0488   999 ;
                        0488  1000 ; SIDE EFFECTS:
                        0488  1001 ;
                        0488  1002 ;       none
                        0488  1003 ;--
                        0488  1004
                        0488  1005 DVI_DO_ITEM:
      56    E8 AD    D0   0488  1006          MOVL    CURRENT_UCB(FP),R6      ; Get current UCB address
51    59    FF 8F    78   048C  1007          ASHL    #-1,R9,R1               ; Item index
 50    FB79 CF41    D0   0491  1008          MOVL    W^DVI_ITEM_TABLE[R1],R0 ; Fetch associated item value
            02    18   0497  1009          BGEQ    20$                     ; Branch if not a special item
            60    17   0499  1010          JMP     (R0)                    ; Handle special items
      09 50    19    E1   049B  1011 20$:    BBC     #DVI_V_DEVTYPE,R0,40$   ; Branch if no specific device type
      01    40 A6    91   049F  1012          CMPB    UCB$B_DEVCLASS(R6),#DC$_DISK ; Disk only item, is it a disk?
            03    13   04A3  1013          BEQL    40$                     ; Branch if not, null item
          008B    31   04A5  1014          BRW     EXE$DVI_NULL_ITEM
51    50    03    13    EF   04A8  1015 40$:    EXTZV   #DVI_V_STRUCT,#DVI_S_STRUCT,R0,R1 ; Get structure code
                        04AD  1016          CASE    R1,<=
```

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                     04AD  1017                DVI_UCB,-                   ; UCB
                     04AD  1018                DVI_DDB,-                   ; DDB
                     04AD  1019                DVI_VCB_RVT_AQB,-           ; VCB
                     04AD  1020                DVI_VCB_RVT_AQB,-           ; RVT
                     04AD  1021                DVI_VCB_RVT_AQB,-           ; AQB
                     04AD  1022                DVI_ORB -                   ; ORB
                     04AD  1023          >
                     04BD  1024 ;
                     04BD  1025 ; Fall through for VCB, RVT, or AQB
                     04BD  1026 ;
                     04BD  1027 DVI_VCB_RVT_AQB:
          55  EC AD  D0 04BD  1028          MOVL    CURRENT_VCB(FP),R5          ; Get VCB address if any
                03  12 04C1  1029          BNEQ    45$                         ; Branch if none
              006D  31 04C3  1030          BRW     EXE$DVI_NULL_ITEM
                     04C6  1031
                     04C6  1032 45$:      ASSUME  DVI_C_RVT EQ DVI_C_VCB+1
                     04C6  1033           ASSUME  DVI_C_AQB EQ DVI_C_VCB+2
             51  03  C2 04C6  1034          SUBL    #DVI_C_RVT,R1               ; -1 = VCB, 0 = RVT, 1 = AQB
                39  19 04C9  1035          BLSS    DVI_STRUCT                  ; Branch if VCB
                20  14 04CB  1036          BGTR    DVI_AQB                     ; Branch if AQB
                     04CD  1037 ;
                     04CD  1038 ; Get Relative Volume Table Address if any
                     04CD  1039 ;
              025C  30 04CD  1040          BSBW    DVI_GET_RVT                 ; Get relative volume table adr
                06  13 04D0  1041          BEQL    DVI_NO_RVT                  ; Branch if not a volume set
          54  0B A3  9A 04D2  1042          MOVZBL  RVT$B_NVOLS(R3),R4          ; Number of volumes in volume set
                06  11 04D6  1043          BRB     DVI_RVT
                     04D8  1044 DVI_NO_RVT:
             52  01  D0 04D8  1045          MOVL    #1,R2                       ; This is volume 1 of single volume set
             54  01  D0 04DB  1046          MOVL    #1,R4                       ; This is a single volume set
                     04DE  1047 DVI_RVT:
      51  50  0A  00  EF 04DE  1048          EXTZV   #DVI_V_OFFSET,#DVI_S_OFFSET,R0,R1 ; Offset is RVT item
                     04E3  1049 ;
                     04E3  1050 ; R2 = volume number for this volume, 1 if not a volume set
                     04E3  1051 ; R3 = RVT address or 0 if not a volume set
                     04E3  1052 ; R4 = volume count or 1 if not a volume set
                     04E3  1053 ;
                     04E3  1054          CASE    R1,< -
                     04E3  1055                  RVT_VOLCNT, -               ; VOLCNT - Number of volumes in the vol set
                     04E3  1056                  RVT_ROOTDEVNAM, -           ; ROOTDEVNAM - Device name for root vol in s
                     04E3  1057                  RVT_NEXTDEVNAM -            ; NEXTDEVNAM - Next device name in vol set
                     04E3  1058                  >
                     04ED  1059 ;
                     04ED  1060 ; Get ACP queue header block address - AQB
                     04ED  1061 ;
                     04ED  1062 DVI_AQB:
          55  10 A5  D0 04ED  1063          MOVL    VCB$L_AQB(R5),R5            ; Get AQB address
                11  19 04F1  1064          BLSS    DVI_STRUCT                  ; Branch if system space address
                3E  11 04F3  1065          BRB     EXE$DVI_NULL_ITEM           ; No AQB, no item data to return
                     04F5  1066 DVI_ORB:
          55  1C A6  D0 04F5  1067          MOVL    UCB$L_ORB(R6),R5            ; Get ORB address
                09  11 04F9  1068          BRB     DVI_STRUCT
                     04FB  1069 DVI_DDB:
          55  28 A6  D0 04FB  1070          MOVL    UCB$L_DDB(R6),R5            ; Get DDB address
                03  11 04FF  1071          BRB     DVI_STRUCT
                     0501  1072 DVI_UCB:
             55  56  D0 0501  1073          MOVL    R6,R5                       ; Get UCB address
```

```
                                0504  1074 ;
                                0504  1075 ; R5 = Address of structure containing desired field
                                0504  1076 ;
                                0504  1077 DVI_STRUCT:
     51    50    0A    00    EF 0504  1078         EXTZV   #DVI_V_OFFSET,#DVI_S_OFFSET,R0,R1 ; Stucture offset
                   55    51    C0 0509  1079         ADDL    R1,R5                          ; Source address of item to move
     51    50    03    16    EF 050C  1080         EXTZV   #DVI_V_DATATYPE,#DVI_S_DATATYPE,R0,R1 ; Data type
                                0511  1081         CASE    R1,<=
                                0511  1082                 EXE$DVI_VALUE, -               ; VALUE - move specified bytcnt
                                0511  1083                 EXE$DVI_CSTRING, -             ; CSTRING - move the ascic string
                                0511  1084                 DVI_BOOLEAN -                  ; BOOLEAN - test the bit
                                0511  1085         >
                         16    11 051B  1086         BRB     EXE$DVI_NULL_ITEM              ; Out of range DTYPE
                                051D  1087 ;
                                051D  1088 ; Boolean data type
                                051D  1089 ;
                                051D  1090 DVI_BOOLEAN:
     51    50    05    1A    EF 051D  1091         EXTZV   #DVI_V_POSIT,#DVI_S_POSIT,R0,R1 ; Bit position
  E0 AD    65    01    51    EF 0522  1092         EXTZV   R1,#1,(R5),SCRATCH(FP)         ; Get the bit and save it
           55    E0 AD    DE 0528  1093         MOVAL   SCRATCH(FP),R5                 ; Point to the saved bit
                         07    11 052C  1094         BRB     EXE$DVI_VALUE
                                052E  1095 ;
                                052E  1096 ; Counted string data type
                                052E  1097 ;
                                052E  1098 EXE$DVI_CSTRING::
                   54    85    9A 052E  1099         MOVZBL  (R5)+,R4                       ; Get size of string, advance adr
                         07    11 0531  1100         BRB     EXE$DVI_MOVE_ITEM
                                0533  1101 ;
                                0533  1102 ; Null item to return to user
                                0533  1103 ;
                                0533  1104 EXE$DVI_NULL_ITEM::
                         50    D4 0533  1105         CLRL    R0                             ; Set size field to 0
                                0535  1106 EXE$DVI_VALUE::
     54    50    09    0A    EF 0535  1107         EXTZV   #DVI_V_BYTCNT,#DVI_S_BYTCNT,R0,R4 ; Size of item to move
                                053A  1108 ;
                                053A  1109 ; R4  = size of item to move in bytes
                                053A  1110 ; R5  = source address to move from
                                053A  1111 ; R7  = Destination address - already probed
                                053A  1112 ; R8  = Address to return length or 0 - already probed
                                053A  1113 ; R10 = Size of return buffer for item, zero fill this buffer
                                053A  1114 ;
                                053A  1115 EXE$DVI_MOVE_ITEM::
                   54    5A    D1 053A  1116         CMPL    R10,R4                         ; If user buffer is too small
                         03    18 053D  1117         BGEQ    10$
                   54    5A    D0 053F  1118         MOVL    R10,R4                         ; Move as much as will fit
                         58    D5 0542  1119 10$:    TSTL    R8                             ; Return length requested?
                         03    13 0544  1120         BEQL    20$                            ; Branch if not
                   68    54    B0 0546  1121         MOVW    R4,(R8)                        ; Set size of data returned
  67    5A    00    65    54    2C 0549  1122 20$:    MOVC5   R4,(R5),#0,R10,(R7)            ; Store item zero filled
                         05    054F  1123         RSB
```

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                     0550  1125          .SBTTL  Special Items
                     0550  1126 ;
                     0550  1127 ; CONCEALED - return boolean indicating whether device is concealed
                     0550  1128 ;
                     0550  1129 $PC_CONCEALED:
          E0 AD   D4 0550  1130          CLRL    SCRATCH(FP)                     ; Will hold bit to indicate concealed
D8 AD   0691 8F   B1 0553  1131          CMPW    #SS$_CONCEALED,STATUS(FP) ; Is it actually concealed?
             03   12 0559  1132          BNEQ    15$                             ; NEQ means answer is false
          E0 AD   D6 055B  1133          INCL    SCRATCH(FP)                     ; Set answer to true
       54    01   D0 055E  1134 15$:     MOVL    #1,R4                           ; Set length of data to move
    55    E0 AD   DE 0561  1135          MOVAL   SCRATCH(FP),R5                  ; Point to data
             D3   11 0565  1136          BRB     EXE$DVI_MOVE_ITEM
                     0567  1137 ;
                     0567  1138 ; VOLNUMBER - return relative volume number
                     0567  1139 ;
                     0567  1140 $PC_VOLNUMBER:
    55    EC AD   D0 0567  1141          MOVL    CURRENT_VCB(FP),R5      ; If not mounted,
             C6   13 056B  1142          BEQL    EXE$DVI_NULL_ITEM       ; Then return zero
    54    0E A5   3C 056D  1143          MOVZWL  VCB$W_RVN(R5),R4        ; Fetch RVN field
             02   12 0571  1144          BNEQ    EXE$DVI_VALUE_IN_R4     ; Non-zero if in a vol set
             54   D6 0573  1145          INCL    R4                      ; It should really be vol 1
                     0575  1146 ;
                     0575  1147 ; ***** Fall through to EXE$DVI_VALUE_IN_R4
                     0575  1148 ;
                     0575  1149 ; RVT items - VOLCNT, ROOTDEVNAM, NXTDEVNAM
                     0575  1150 ;
                     0575  1151 ; R4 = Number of volumes in volume set, 1 if not a volume set
                     0575  1152 ;
                     0575  1153 RVT_VOLCNT:
                     0575  1154 ;
                     0575  1155 ; R4 = long word value to return to caller
                     0575  1156 ;
                     0575  1157 EXE$DVI_VALUE_IN_R4::
    55    E0 AD   DE 0575  1158          MOVAL   SCRATCH(FP),R5          ; Address to store VOLCNT
       65    54   D0 0579  1159          MOVL    R4,(R5)                 ; Save the volume count
       54    04   D0 057C  1160          MOVL    #4,R4                   ; Number of bytes to return
             B9   11 057F  1161          BRB     EXE$DVI_MOVE_ITEM
                     0581  1162 ;
                     0581  1163 ; PID - Convert internal PID in UCB to extended PID for return
                     0581  1164 ;
                     0581  1165 $PC_PID:
    50    2C A6   D0 0581  1166          MOVL    UCB$L_PID(R6),R0        ; Internal PID into R0
00000000'EF   16   D0 0585  1167 CVTPID: JSB     EXE$IPID_TO_EPID        ; Convert to extended
       54    50   D0 058B  1168 PUT4:    MOVL    R0,R4                   ; Put value in register 4
             E5   11 058E  1169          BRB     EXE$DVI_VALUE_IN_R4     ; Join the common code
                     0590  1170 ;
                     0590  1171 ; ACPPID - Convert internal PID in AQB to extended PID for return
                     0590  1172 ;
                     0590  1173 $PC_ACPPID:
    50    EC AD   D0 0590  1174          MOVL    CURRENT_VCB(FP),R0      ; R0 -> volume control block
             F5   13 0594  1175          BEQL    PUT4                    ; Return null item if zero
    50    10 A0   D0 0596  1176          MOVL    VCB$L_AQB(R0),R0        ; Now R0 -> ACP Queue Block
             EF   13 059A  1177          BEQL    PUT4                    ; Return null item if zero
    50    0C A0   D0 059C  1178          MOVL    AQB$L_ACPPID(R0),R0     ; Now R0 has the internal pid
             E3   11 05A0  1179          BRB     CVTPID                  ; Convert the pid and return
                     05A2  1180 ;
                     05A2  1181 ; R2 = Volume number of this volume, 1 if not a volume set
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                        05A2  1182 ; R3 = RVT address, 0 if not a volume set
                        05A2  1183 ; R4 = Volume count, 1 if not a volume set
                        05A2  1184 ;
                        05A2  1185 RVT_ROOTDEVNAM:
              53   D5   05A2  1186          TSTL    R3                          ; If not a volume set
              31   13   05A4  1187          BEQL    SPC_DEVNAM                  ; Return this volume's device name
              52   D4   05A6  1188          CLRL    R2                          ; Otherwise return devnam for first vol
                        05A8  1189 RVT_NEXTDEVNAM:
              07   11   05A8  1190          BRB     20$                         ; Loop 0 or more times
        56  40 A342  D0   05AA  1191 10$:    MOVL    RVT$L_UCBLST-4(R3)[R2],R6 ; Get UCB for this RVN
                        05AF  1192                                              ; RVN is base 1, table is base 0
              26   19   05AF  1193          BLSS    SPC_DEVNAM                  ; Branch if UCB present
     F5 52    54   F3   05B1  1194 20$:    AOBLEQ  R4,R2,10$                   ; Try next RVN
                        05B5  1195 DVI_NULL_ITEM_1:
            FF7B   31   05B5  1196          BRW     EXE$DVI_NULL_ITEM
                        05B8  1197 ;
                        05B8  1198 ; Device Name String - DEVNAM
                        05B8  1199 ;
                        05B8  1200 SPC_ALLDEVNAM:
        54  01   D0   05B8  1201          MOVL    #1,R4                       ; flag IOC$CVT_DEVNAM to return the
              1D   11   05BB  1202          BRB     SPC2                        ; allocation class + device name
                        05BD  1203
                        05BD  1204 SPC_FULLDEVNAM:
              54   D4   05BD  1205          CLRL    R4                          ; flag IOC$CVT_DEVNAM to return the
              19   11   05BF  1206          BRB     SPC2                        ; fully qualified device name
                        05C1  1207
                        05C1  1208 SPC_TT_PHYDEVNAM:
EF 38 A6      02   E1   05C1  1209          BBC     #DEV$V_TRM,UCB$L_DEVCHAR(R6),DVI_NULL_ITEM_1 ; Non-terminal?
EA 38 A6      0D   E0   05C6  1210          BBS     #DEV$V_NET,UCB$L_DEVCHAR(R6),DVI_NULL_ITEM_1 ; Network dev?
07 3C A6      02   E0   05CB  1211          BBS     #DEV$V_RTT,UCB$L_DEVCHAR2(R6),SPC_DEVNAM ; Skip remote term's
 56    00A0   C6   D0   05D0  1212          MOVL    UCB$L_TL_PHYUCB(R6),R6      ; Fetch physical UCB from virtual
              DE   13   05D5  1213          BEQL    DVI_NULL_ITEM_1             ; None, go return null string
                        05D7  1214 SPC_DEVNAM:
        54  01   CE   05D7  1215          MNEGL   #1,R4                       ; Force nodename to be left off
        55  56   D0   05DA  1216 SPC2:     MOVL    R6,R5                       ; UCB Address
        50  5A   D0   05DD  1217          MOVL    R10,R0                      ; Size of return buffer
        51  57   D0   05E0  1218          MOVL    R7,R1                       ; Address of return buffer - pre probed
  00000000'GF   16   05E3  1219          JSB     G^IOC$CVT_DEVNAM            ; Get device name "_ddcu:"
        54  51   D0   05E9  1220          MOVL    R1,R4                       ; Size of string returned
        55  57   D0   05EC  1221          MOVL    R7,R5                       ; Address of string
            FF48   31   05EF  1222          BRW     EXE$DVI_MOVE_ITEM           ; Move to self, zero filling.
                        05F2  1223 ;
                        05F2  1224 ; Device lock name
                        05F2  1225 ;
                        05F2  1226 LCK_FOR:
  C1 3C A6      00   E0   05F2  1227          BBS     S^#DEV$V_CLU,UCB$L_DEVCHAR2(R6),SPC_ALLDEVNAM ; Cluster-visible?
              C4   11   05F7  1228          BRB     SPC_FULLDEVNAM              ; Not cluster-visible
                        05F9  1229 SPC_DEVLOCKNAM:
        54  10   D0   05F9  1230          MOVL    #16,    R4                  ; OUTLEN is 16 bytes
     56    E8 AD   D0   05FC  1231          MOVL    CURRENT_UCB(FP),R6          ; Setup for DVI_GET_RVT routine
     55    EC AD   D0   0600  1232          MOVL    CURRENT_VCB(FP),R5
              EC   13   0604  1233          BEQL    LCK_FOR                     ; EQL means not mounted
  E7 38 A6      18   E0   0606  1234          BBS     S^#DEV$V_FOR,UCB$L_DEVCHAR(R6),LCK_FOR ; Foreign?
                        060B  1235
        51   DC AD   D0   060B  1236          MOVL    KRP(FP),R1                  ; Retrieve allocated KRP
              15   12   060F  1237          BNEQ    20$                         ; Continue if KRP has been allocated
51  00000000'GF   9E   0611  1238          MOVAB   G^CTL$GL_KRPFL,R1           ; Retrieve address of KRP queue listhead
```

```
                51    04 B1    0F   0618   1239          REMQUE  @4(R1),R1                ; Retrieve KRP from lookaside list
                         04    1C   061C   1240          BVC     10$                      ; Continue if got one
                                    061E   1241          BUG_CHECK       KRPEMPTY,FATAL   ; Otherwise bugcheck
                                    0622   1242
                DC AD    51    D0   0622   1243 10$:     MOVL    R1,KRP(FP)               ; Save address of KRP in local storage
                      2C A6    D5   0626   1244 20$:     TSTL    UCB$L_PID(R6)            ; Is the device allocated?
                         05    13   0629   1245          BEQL    30$                      ; EQL means it is not
                   61    01    90   062B   1246          MOVB    #DVI_K_PRIVATE,(R1)      ; Setup the prefix byte in KRP
                         03    11   062E   1247          BRB     40$
                   61    02    90   0630   1248 30$:     MOVB    #DVI_K_SHAREABLE,(R1)    ; Setup the prefix byte in KRP
                      00F6    30   0633   1249 40$:     BSBW    DVI_GET_RVT              ; Get relative volume table address
                         09    12   0636   1250          BNEQ    50$                      ; NEQ means it is a volume set
             55  00000080 8F    C0   0638   1251          ADDL    #VCB$T_VOLCKNAM,R5       ; Add in offset to 'name'
                         04    11   063F   1252          BRB     60$
                55    53    18    C1   0641   1253 50$:     ADDL3   #RVT$T_VLSLCKNAM,R3,R5   ; Add in offset to 'name'
                   01 A1    85    7D   0645   1254 60$:     MOVQ    (R5)+,T(R1)              ; Move the 12 bytes to the buffer
                   09 A1    65    D0   0649   1255          MOVL    (R5),9(R1)
                      0D A1    D4   064D   1256          CLRL    13(R1)                   ; Zero bytes 14-16
                   55    61    DE   0650   1257          MOVAL   (R1),R5                  ; Point to the whole buffer
                      FEE4    31   0653   1258          BRW     EXE$DVI_MOVE_ITEM
                                   0656   1259 ;
                                   0656   1260 ; Volume set member
                                   0656   1261 ;
                                   0656   1262 $PC_VOLSETMEM:
                   54    01    D0   0656   1263          MOVL    #1,R4                    ; Boolean answer is one byte long
                      E0 AD    D4   0659   1264          CLRL    SCRATCH(FP)              ; Assume not a volume set
                56    E8 AD    D0   065C   1265          MOVL    CURRENT_UCB(FP),R6       ; Setup for DVI_GET_RVT
                55    EC AD    D0   0660   1266          MOVL    CURRENT_VCB(FP),R5
                         08    13   0664   1267          BEQL    20$                      ; EQL means not mounted
                      00C3    30   0666   1268          BSBW    DVI_GET_RVT              ; Get relative volume table address
                         03    13   0669   1269          BEQL    20$                      ; EQL means not a volume set
                      E0 AD    D6   066B   1270          INCL    SCRATCH(FP)              ; Set volume set to True
             55       E0 AD    9E   066E   1271 20$:     MOVAB   SCRATCH(FP),R5           ; scratch(fp) is were the answer is
                      FEC5    31   0672   1272          BRW     EXE$DVI_MOVE_ITEM
                                   0675   1273
                                   0675   1274 DVI_NULL_ITEM_2:
                      FEBB    31   0675   1275          BRW     EXE$DVI_NULL_ITEM
                                   0678   1276 ;
                                   0678   1277 ; Volume name - strip trailing blanks
                                   0678   1278 ;
                                   0678   1279 $PC_VOLNAM:
             55    EC AD    D0   0678   1280          MOVL    CURRENT_VCB(FP),R5       ; VCB address
                      F7    13   067C   1281          BEQL    DVI_NULL_ITEM_2          ; No data if not mounted
                55    14    C0   067E   1282          ADDL    #VCB$T_VOLNAME,R5        ; Address of volname string
                54    0B    D0   0681   1283          MOVL    #11,R4                   ; Base 0 count of characters in name
             20    6544    91   0684   1284 10$:     CMPB    (R5)[R4],#^A/ /          ; Strip off trailing blanks
                         03    12   0688   1285          BNEQ    20$                      ; Branch if not a blank
                   F7 54    F4   068A   1286          SOBGEQ  R4,10$                   ; Try next character
                         54    D6   068D   1287 20$:     INCL    R4                       ; Actual byte count
                      FEA8    31   068F   1288          BRW     EXE$DVI_MOVE_ITEM        ; Go move the volume name
```

```
                                0692  1290 ;
                                0692  1291 ; LOGVOLNAM - logical volume name
                                0692  1292 ;
                                0692  1293 $PC_LOGVOLNAM:
          51    DC AD    D0     0692  1294         MOVL    KRP(FP),R1                      ; Retrieve allocated KRP
                   15    12     0696  1295         BNEQ    5$                              ; Continue if KRP has been allocated
     51    00000000'GF    9E     0698  1296         MOVAB   G^CTL$GL_KRPFL,R1               ; Retrieve address of KRP queue listhead
          51    04 B1    0F     069F  1297         REMQUE  @4(R1),RT                       ; Retrieve KRP from lookaside list
                   04    1C     06A3  1298         BVC     1$                              ; Continue if got one
                                06A5  1299         BUG_CHECK       KRPEMPTY,FATAL  ; Otherwise bugcheck
                                06A9  1300
          DC AD    51    D0     06A9  1301 1$:     MOVL    R1,KRP(FP)                      ; Save address of KRP in local storage
                   61    D4     06AD  1302 5$:     CLRL    (R1)                            ; Set up a null LOGVOLNAM
          55    EC AD    D0     06AF  1303         MOVL    CURRENT_VCB(FP),R5              ; If no volume control block
                   70    13     06B3  1304         BEQL    80$                             ; then no logical volume name
                 0074    30     06B5  1305         BSBW    DVI_GET_RVT                     ; Return RVT in R3 or zero
                   06    13     06B8  1306         BEQL    10$                             ; Branch if not a volume set
          56    44 A3    D0     06BA  1307         MOVL    RVT$L_UCBLST(R3),R6             ; Get Root UCB address
                   65    13     06BE  1308         BEQL    80$                             ; Branch if no UCB, really an error
     54    00000000'9F    D0     06C0  1309 10$:    MOVL    @#CTL$GL_PCB,R4                 ; Get the PCB address for this process
          54    0080 C4    D0     06C7  1310         MOVL    PCB$L_JIB(R4),R4                ; Get the JIB address
                54    64    DE     06CC  1311         MOVAL   JIB$L_MTLFL(R4),R4              ; Get the job-wide mount list head
                                06CF  1312
                                06CF  1313         ASSUME  VCB$V_GROUP EQ VCB$V_SYSTEM-1
51    0B A5    02    06    EF     06CF  1314         EXTZV   #VCB$V_GROUP,#2,VCB$B_STATUS(R5),R1 ; 0 = Process
                                06D5  1315                                                 ; 1 = Group, 2 = System
                   0A    13     06D5  1316         BEQL    20$                             ; Branch if not mounted /SYSTEM or /GROUP
     54    00000000'EF    DE     06D7  1317         MOVAL   IOC$GQ_MOUNTLST,R4              ; Search System/Group Mounted Vol List
                51    51    CE     06DE  1318         MNEGL   R1,R1                          ; System = -2, Group = -1
                52    54    D0     06E1  1319 20$:    MOVL    R4,R2                           ; Copy list head address
                                06E4  1320
                                06E4  1321         ASSUME  MTL$L_MTLFL EQ 0
                52    62    D0     06E4  1322 30$:    MOVL    MTL$L_MTLFL(R2),R2              ; Get next entry on list
                54    52    D1     06E7  1323         CMPL    R2,R4                           ; End of list?
                      39    13     06EA  1324         BEQL    80$                             ; Branch if yes, no MTL, really error
          0C A2       56    D1     06EC  1325         CMPL    R6,MTL$L_UCB(R2)                ; MTL entry for this UCB?
                      F2    12     06F0  1326         BNEQ    30$                             ; Try next if not
                      53    D5     06F2  1327         TSTL    R3                              ; Volume set?
                      05    13     06F4  1328         BEQL    40$                             ; Branch if not, this MTL is it
       E9 0B A2       00    E1     06F6  1329         BBC     #MTL$V_VOLSET,MTL$B_STATUS(R2),30$ ; Yes, get the right MTL entry
                                06FB  1330 ;
                                06FB  1331 ; R2 = Mounted Volume List (MTL) entry address
                                06FB  1332 ;
                                06FB  1333
     54    00000000'9F    D0     06FB  1334 40$:    MOVL    @#CTL$GL_PCB,R4                 ; PCB address for this process
                   54    DD     0702  1335         PUSHL   R4                              ; Save for unlock call
          00000000'EF    16     0704  1336         JSB     LNM$LOCKR                       ; Lock Logical name Mutex for reading
                                070A  1337 ;
                                070A  1338 ; ***** Note that R2 is preserved across the above call
                                070A  1339 ;
          52    10 A2    D0     070A  1340         MOVL    MTL$L_LOGNAME(R2),R2            ; Get logical name table entry adr
                   0C    13     070E  1341         BEQL    50$                             ; Branch if none present
          51    11 A2    9A     0710  1342         MOVZBL  LNMB$T_NAME(R2),R1              ; Size of name
                   51    D6     0714  1343         INCL    R1                              ; Include count byte
DC BD     11 A2    51    28     0716  1344         MOVC3   R1,LNMB$T_NAME(R2),@KRP(FP)
                                071C  1345                                                 ; Save logical name in KRP
                54 8ED0          071C  1346 50$:    POPL    R4                              ; Get parameters for unlock call
```

```
00000000'EF   16  071F  1347              JSB     LNM$UNLOCK              ; Release Logical Name Table Mutex
     55 DC AD   D0  0725  1348 80$:        MOVL    KRP(FP),R5              ; Address of counted string to return
           FE02 31  0729  1349              BRW     EXE$DVI_CSTRING         ; Go move counted string
```

```
                     072C  1351 ;
                     072C  1352 ; Functional Description:
                     072C  1353 ;
                     072C  1354 ;       Get Relative Volume Table address if any
                     072C  1355 ;
                     072C  1356 ; Calling Sequence:
                     072C  1357 ;
                     072C  1358 ;       BSBW    DVI_GET_RVT
                     072C  1359 ;
                     072C  1360 ; Inputs:
                     072C  1361 ;
                     072C  1362 ;       R5 = VCB address
                     072C  1363 ;       R6 = UCB address
                     072C  1364 ;
                     072C  1365 ; Outputs:
                     072C  1366 ;
                     072C  1367 ;       If this UCB is part of a volume set:
                     072C  1368 ;               Condition code Z is CLEAR
                     072C  1369 ;               R2 = RVN for this volume
                     072C  1370 ;               R3 = RVT address
                     072C  1371 ;               Other registers are preserved
                     072C  1372 ;
                     072C  1373 ;       If this UCB is NOT part of a volume set:
                     072C  1374 ;               Condition code Z is SET
                     072C  1375 ;               R3 = 0
                     072C  1376 ;               Other registers are preserved
                     072C  1377 ;
                     072C  1378 DVI_GET_RVT:
           53   D4   072C  1379          CLRL    R3                              ; Assume not a volume set
0A 38 A6    18   E0  072E  1380          BBS     S^#DEV$V_FOR,UCB$L_DEVCHAR(R6),20$ ; If FOREIGN, not a volume set
   52    0E A5   3C  0733  1381          MOVZWL  VCB$W_RVN(R5),R2                ; Relative volume number
           04   13  0737  1382          BEQL    20$                             ; Branch if not a volume set
   53    20 A5   D0  0739  1383          MOVL    VCB$L_RVT(R5),R3                ; Fetch RVT address (still could be 0)
                05  073D  1384 20$:     RSB                                     ; Return Z bit set if R3 = 0
```

```
                     073E  1386 ;
                     073E  1387 ; Volume free blocks
                     073E  1388 ;
                     073E  1389 $PC_FREEBLOCKS:
          55 EO AD DE 073E  1390         MOVAL   SCRATCH(FP),R5          ; Stash a pointer to the answer
             65 D4    0742  1391         CLRL    (R5)                    ; Assume zero blocks
          56 E8 AD D0 0744  1392         MOVL    CURRENT_UCB(FP),R6      ; Get the ucb address
          01 40 A6 91 0748  1393         CMPB    UCB$B_DEVCLASS(R6),#DC$_DISK ; Is it a disk?
             26 12    074C  1394         BNEQ    20$                     ; NEQ means not a disk, return 0 blocks
          56 EC AD D0 074E  1395         MOVL    CURRENT_VCB(FP),R6      ; Get the vcb for the disk
             20 13    0752  1396         BEQL    20$                     ; EQL means not mounted
          65 40 A6 D0 0754  1397         MOVL    VCB$L_FREE(R6),(R5)     ; Assume that we will use free blocks from V
          54 10 A6 D0 0758  1398         MOVL    VCB$L_AQB(R6),R4        ; Get pointer to AQB
             16 13    075C  1399         BEQL    20$                     ; EQL means no AQB, use vcb$l_free (strange
          02 15 A4 91 075E  1400         CMPB    AQB$B_ACPTYPE(R4),#AQB$K_F11V2 ; Is it an ODS-2 ACP?
             10 12    0762  1401         BNEQ    20$                     ; NEQ means not ODS-2, use vcb$l_free
          54 7C A6 D0 0764  1402         MOVL    VCB$L_VOLLKID(R6),R4    ; Get the lock id for the volume lock
             0A 13    0768  1403         BEQL    20$                     ; EQL means no lock id, use vcb$l_free (shou
          7E    54 7D 076A  1404         MOVQ    R4,-(SP)                ; Push the lock id and return value address
0000077A'EF     02 FB 076D  1405         CALLS   #2,EXE$DVI_FREEBLOCKS   ; Call the routine to check the lock
                     0774  1406                                         ; If error, then vcb$l_free will be used
          54    04 D0 0774  1407 20$:    MOVL    #4,R4                   ; Answer is 4 bytes long
             FDC0   31 0777  1408         BRW     EXE$DVI_MOVE_ITEM       ; Go move the item
                     077A  1409
                     077A  1410 ;+
                     077A  1411 ; EXE$DVI_FREEBLOCKS
                     077A  1412 ;       Procedure to fetch the correct free block count from the XQP's volume
                     077A  1413 ; lock block.  This procedure is also called by SHOW DEVICE (SHODEVUTL.B32) DCL
                     077A  1414 ; command to fetch the correct free blocks for SHOW DEVICE displays.
                     077A  1415 ;
                     077A  1416 ; Input:
                     077A  1417 ;       4(AP) - Lockid to fetch value block
                     077A  1418 ; Output:
                     077A  1419 ;       8(AP) - Address to store freeblocks field
                     077A  1420 ; Routine value:
                     077A  1421 ;       R0 -    Status from getlki call
                     077A  1422 ;-
                     077A  1423
                     077A  1424 ; Offsets from frame pointer for scratch storage
                     077A  1425 ;
                FFFFFFE0 077A  1426 VALBLK = -32            ; Address to return value block
                FFFFFFE4 077A  1427 FREEBL = VALBLK + 4     ; Free blocks are in second longword of value block
                FFFFFFF0 077A  1428 ITMLST = -16            ; Build 4 longword item list
                     077A  1429
                   0000 077A  1430 .ENTRY  EXE$DVI_FREEBLOCKS,0
             5E    20   C2 077C  1431         SUBL2   #32,SP                  ; Get scratch area
FO AD   02030010 8F   D0 077F  1432         MOVL    #<<LKI$_VALBLK@16>!16>,ITMLST(FP) ; Item code and buffer length
       F4 AD    E0 AD 9E 0787  1433         MOVAB   VALBLK(FP),ITMLST+4(FP) ; Address of value block
             F8 AD 7C 078C  1434         CLRQ    ITMLST+8(FP)            ; No return length, end of list
                     078F  1435         $GETLKIW_S EFN=S^#EXE$C_SYSEFN, LKIDADR=4(AP), ITMLST=ITMLST(FP)
          05 50    E9 07A4  1436         BLBC    R0,10$                  ; Error? Then exit
       08 BC    E4 AD D0 07A7  1437         MOVL    FREEBL(FP),@8(AP)       ; Send it back
                04   07AC  1438 10$:     RET
                     07AD  1439
```

```
                                07AD  1441
                                07AD  1442
                                07AD  1443 ;
                                07AD  1444 ; R6  = UCB address
                                07AD  1445 ; R7  = Destination address - already probed
                                07AD  1446 ; R8  = Address to return length or 0 - already probed
                                07AD  1447 ; R10 = Size of return buffer for item, zero fill this buffer
                                07AD  1448 ;
                                07AD  1449 $PC_MEDIA_NAME:
            01    40 A6   91    07AD  1450          CMPB    UCB$B_DEVCLASS(R6), #DC$_DISK   ; If disk class OK
                     09   13    07B1  1451          BEQL    10$
            02    40 A6   91    07B3  1452          CMPB    UCB$B_DEVCLASS(R6), #DC$_TAPE   ; If tape class OK
                     03   13    07B7  1453          BEQL    10$
                  FD77    31    07B9  1454   5$:    BRW     EXE$DVI_NULL_ITEM               ; If not disk or tape return null
               008C C6    D5    07BC  1455  10$:    TSTL    UCB$L_MEDIA_ID(R6)              ; Test to make sure field is not 0
                     F7   13    07C0  1456          BEQL    5$                              ; If 0 then return null item
            51    DC AD   D0    07C2  1457          MOVL    KRP(FP), R1                     ; Get address of KRP to build
                     15   12    07C6  1458          BNEQ    30$                             ;  the string (may be >4 chars)
         51    00000000'GF    9E    07C8  1459          MOVAB   G^CTL$GL_KRPFL, R1              ; Get Q head
            51    04 B1   0F    07CF  1460          REMQUE  @4(R1), R1                      ; Get next KRP
                     04   1C    07D3  1461          BVC     20$                             ; Branch if not empty
                                07D5  1462          BUG_CHECK       KRPEMPTY, FATAL
            DC AD   51    D0    07D9  1463  20$:    MOVL    R1, KRP(FP)                     ; Save address of KRP address
                     54   D4    07DD  1464  30$:    CLRL    R4                              ; Init string length
      50  008C C6   05   11    EF    07DF  1465          EXTZV   #UCB$V_MEDIA_ID_N0, -
                                07E6  1466                  #UCB$S_MEDIA_ID_N0, -
                                07E6  1467                  UCB$L_MEDIA_ID(R6), -
                                07E6  1468                  R0                              ; Extract character number
                     02   13    07E6  1469          BEQL    40$                             ; If zero null character
                     5F   10    07E8  1470          BSBB    DVI_DECODE_MEDIA_CHAR           ; place ASCII char in string
                                07EA  1471  40$:
      50  008C C6   05   0C    EF    07EA  1472          EXTZV   #UCB$V_MEDIA_ID_N1, -
                                07F1  1473                  #UCB$S_MEDIA_ID_N1, -
                                07F1  1474                  UCB$L_MEDIA_ID(R6), -
                                07F1  1475                  R0                              ; Extract character number
                     02   13    07F1  1476          BEQL    50$                             ; If zero null character
                     54   10    07F3  1477          BSBB    DVI_DECODE_MEDIA_CHAR           ; place ASCII char in string
                                07F5  1478  50$:
      50  008C C6   05   07    EF    07F5  1479          EXTZV   #UCB$V_MEDIA_ID_N2, -
                                07FC  1480                  #UCB$S_MEDIA_ID_N2, -
                                07FC  1481                  UCB$L_MEDIA_ID(R6), -
                                07FC  1482                  R0                              ; Extract character number
                     02   13    07FC  1483          BEQL    60$                             ; If zero null character
                     49   10    07FE  1484          BSBB    DVI_DECODE_MEDIA_CHAR           ; place ASCII char in string
                                0800  1485  60$:
      50  008C C6   07   00    EF    0800  1486          EXTZV   #UCB$V_MEDIA_ID_NN, -
                                0807  1487                  #UCB$S_MEDIA_ID_NN, -           ; value of two decimal
                                0807  1488                  UCB$L_MEDIA_ID(R6), -
                                0807  1489                  R0                              ;  digits
         00000064 8F    50   D1    0807  1490          CMPL    R0, #100
                     18   1F    080E  1491          BLSSU   70$                             ; If < 100 skip to tens
                     52   D4    0810  1492          CLRL    R2                              ; Clear hundreds counter
               50    64 8F   82    0812  1493  65$:    SUBB2   #100, R0                        ; Subtract 100 from value
                     04   19    0816  1494          BLSS    66$                             ; Branch if go negative
                     52   D6    0818  1495          INCL    R2                              ; Incre tens counter
                     F6   11    081A  1496          BRB     65$                             ; Loop
               50    64 8F   80    081C  1497  66$:    ADDB2   #100, R0                        ; Get back to positive #
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                52   30   80   0820  1498          ADDB2   #^X30, R2                       ; Convert to acsii char
                81   52   90   0823  1499          MOVB    R2, (R1)+                       ; Move into string
                     54   D6   0826  1500          INCL    R4                              ; Adjust length
                     52   D4   0828  1501 70$:     CLRL    R2                              ; Clear tens counter
                50   0A   82   082A  1502 75$:     SUBB2   #10, R0                         ; Subtract 10 from value
                     04   19   082D  1503          BLSS    80$                             ; Branch if go negative
                     52   D6   082F  1504          INCL    R2                              ; Incre tens counter
                     F7   11   0831  1505          BRB     75$                             ; Loop
                52   30   80   0833  1506 80$:     ADDB2   #^X30, R2                       ; Convert to acsii char
                81   52   90   0836  1507          MOVB    R2, (R1)+                       ; Move into string
                50   3A   80   0839  1508          ADDB2   #^X3A, R0                       ; Convert neg number to
                          083C  1509                                                      ;  pos ascii character
                81   50   90   083C  1510          MOVB    R0, (R1)+                       ; Move it into the string
                54   02   80   083F  1511          ADDB2   #2, R4                          ; Adjust the length
           55   DC   AD   D0   0842  1512          MOVL    KRP(FP), R5                     ; Set source address
                FCF1    31   0846  1513          BRW     EXE$DVI_MOVE_ITEM               ; Move the string and process
                          0849  1514                                                      ;  the next item
                          0849  1515
                          0849  1516 ;
                          0849  1517 ; R0 = character number
                          0849  1518 ; R1 = address of next free byte in string
                          0849  1519 ; R4 = length of string
                          0849  1520 ;
                          0849  1521 DVI_DECODE_MEDIA_CHAR:
                1A   50   D1   0849  1522          CMPL    R0, #26                         ; Only 26 chars in alphabet
                     0D   1A   084C  1523          BGTRU   20$                             ; If not 0-26 place "." in string
           50   00000040 8F   C0   084E  1524          ADDL2   #^X40, R0                       ; Convert number to ascii char
                     54   D6   0855  1525 10$:     INCL    R4                              ; increment length
                81   50   90   0857  1526          MOVB    R0, (R1)+                       ; Move the char into string
                     05   085A  1527          RSB
                50   2E   9A   085B  1528 20$:     MOVZBL  #^X2E, R0                       ; Set  "."
                     F5   11   085E  1529          BRB     10$
                          0860  1530
                          0860  1531 ;
                          0860  1532 ; R6  = UCB address
                          0860  1533 ; R7  = Destination address - already probed
                          0860  1534 ; R8  = Address to return length or 0 - already probed
                          0860  1535 ; R10 = Size of return buffer for item, zero fill this buffer
                          0860  1536 ;
                          0860  1537 SPC_MEDIA_TYPE:
             01   40 A6   91   0860  1538          CMPB    UCB$B_DEVCLASS(R6), #DC$_DISK   ; If disk class OK
                     09   13   0864  1539          BEQL    10$
             02   40 A6   91   0866  1540          CMPB    UCB$B_DEVCLASS(R6), #DC$_TAPE   ; If tape class OK
                     03   13   086A  1541          BEQL    10$
                FCC4    31   086C  1542          BRW     EXE$DVI_NULL_ITEM               ; If not disk or tape return null
             51   E0 AD   DE   086F  1543 10$:     MOVAL   SCRATCH(FP), R1                 ; Set address to build string
                     54   D4   0873  1544          CLRL    R4                              ; Init char count
50   008C C6   05   1B   EF   0875  1545          EXTZV   #UCB$V_MEDIA_ID_T0, -
                          087C  1546                  #UCB$S_MEDIA_ID_T0, -
                          087C  1547                  UCB$L_MEDIA_ID(R6), -
                          087C  1548                  R0                              ; Extract character number
                     02   13   087C  1549          BEQL    20$                             ; If zero null character
                     C9   10   087E  1550          BSBB    DVI_DECODE_MEDIA_CHAR           ; place ASCII char in string
                          0880  1551 20$:
50   008C C6   05   16   EF   0880  1552          EXTZV   #UCB$V_MEDIA_ID_T1, -
                          0887  1553                  #UCB$S_MEDIA_ID_T1, -
                          0887  1554                  UCB$L_MEDIA_ID(R6), -
```

```
                     0887  1555                    R0                              ; Extract character number
          02   13    0887  1556                BEQL    30$                         ; If zero null character
          BE   10    0889  1557                BSBB    DVI_DECODE_MEDIA_CHAR       ; place ASCII char in string
                     088B  1558 30$:
55   EO AD   DE      088B  1559                MOVAL   SCRATCH(FP), R5             ; Set source address
        FCA8   31    088F  1560                BRW     EXE$DVI_MOVE_ITEM           ; Move the string and process
                     0892  1561                                                    ;  the next item
                     0892  1562
```

```
                     0892  1564          .SBTTL  Dual path and shadow set items
                     0892  1565 ;
                     0892  1566 ; Items for shadow sets
                     0892  1567 ;
                     0892  1568 $PC_SHDW_CATCHUP_COPYING:                ; Catchup copy in progress
                     0892  1569 $PC_SHDW_MERGE_COPYING:                  ; Merge copy in progress
                     0892  1570 $PC_SHDW_spare_bit_1:                    ; Just in case
                     0892  1571 $PC_SHDW_spare_bit_2:                    ; Just in case
50 000008E0'EF   9E  0892  1572          MOVAB   EXE$DVI_RETURN_FALSE, R0
                0E   11  0899  1573          BRB     MV_JUMP
                     089B  1574 $PC_SHDW_MASTER_NAME:                    ; Master name for set
                     089B  1575 $PC_SHDW_NEXT_MBR_NAME:                  ; Name of next member
                     089B  1576 $PC_SHDW_spare_string_1:                 ; Just in case
                     089B  1577 $PC_SHDW_spare_string_2:                 ; Just in case
50 FC94 CF   9E  089B  1578          MOVAB   EXE$DVI_NULL_ITEM, R0
                07   11  08A0  1579          BRB     MV_JUMP
                     08A2  1580 $PC_SHDW_spare_integer_1:                ; Just in case
                     08A2  1581 $PC_SHDW_spare_integer_2:                ; Just in case
50 000008EC'EF   9E  08A2  1582          MOVAB   EXE$DVI_RETURN_ZERO, R0
                     08A9  1583          ;fall through to MV_JUMP
                     08A9  1584 ;
                     08A9  1585 ; Since Shadow support is latent, we will jump into the mount verification
                     08A9  1586 ; code in SYSLOA to process the item.  This is a lot simpler than trying
                     08A9  1587 ; to patch SYS at some future date.
                     08A9  1588 ;
                     08A9  1589 MV_JUMP:
00000000'GF      17  08A9  1590          JMP     G^EXE$MNTVER_DVI_ASSIST ; For now, this just does a JMP (R0)
                     08AF  1591
                     08AF  1592 ;
                     08AF  1593 ; DVI$_REMOTE_DEVICE - Device is served by a host other than the local VAX
                     08AF  1594 ;
                     08AF  1595 $PC_REMOTE_DEVICE:
50 00000000'GF   9E  08AF  1596          MOVAB   G^SCS$GA_LOCALSB, R0    ; Get the address of the local system block
   56    E8 AD   D0  08B6  1597          MOVL    CURRENT_UCB(FP), R6     ; Get the address of the UCB
   56    28 A6   D0  08BA  1598          MOVL    UCB$L_DDB(R6), R6       ; Move down to the DDB
   50    34 A6   D1  08BE  1599          CMPL    DDB$L_SB(R6), R0        ; Compare DDB's SB with the local SB
             1C   13  08C2  1600          BEQL    EXE$DVI_RETURN_FALSE    ; EQL means that it is the local block
             11   11  08C4  1601          BRB     EXE$DVI_RETURN_TRUE     ; Set the flag, it is remote
                  08C6  1602
                  08C6  1603 ;
                  08C6  1604 ; DVI$_SHDW_MASTER - The device is really the "virtual" name for the shadow set
                  08C6  1605 ;
                  08C6  1606 $PC_SHDW_MASTER:
   56    E8 AD   D0  08C6  1607          MOVL    CURRENT_UCB(FP), R6     ; Get the address of the UCB
11 3C A6    05   E1  08CA  1608          BBC     #DEV$V_MSCP, -          ; See if the mscp bit is set in the
                  08CF  1609                  UCB$L_DEVCHAR2(R6), -   ;  second characteristics longword
                  08CF  1610                  EXE$DVI_RETURN_FALSE    ;  and return false if not set
      00D4 C6   B5  08CF  1611          TSTW    UCB$W_MSCPUNIT(R6)      ; Unit # with high bit set is shadow master
             0B   18  08D3  1612          BGEQ    EXE$DVI_RETURN_FALSE    ; GEQ means that high bit is not set
             00   11  08D5  1613          BRB     EXE$DVI_RETURN_TRUE     ; Set the flag, it is the master
                  08D7  1614
                  08D7  1615 ;
                  08D7  1616 ; Routines to return specific values
                  08D7  1617 ;
                  08D7  1618 EXE$DVI_RETURN_TRUE::                        ; Boolean TRUE
   55    E0 AD   DE  08D7  1619          MOVAL   SCRATCH(FP),R5          ; Grab pointer to scratch area
      65    01   D0  08DB  1620          MOVL    #1,(R5)                 ; Return a one
```

```
                 06   11  08DE  1621          BRB     RETURN_TF
                                  08E0  1622 EXE$DVI_RETURN_FALSE::                  ; Boolean FALSE
55    EO AD      DE        08E0  1623          MOVAL   SCRATCH(FP),R5                ; Grab pointer to scratch area
                 65   D4   08E4  1624          CLRL    (R5)                          ; Return a zero
                                  08E6  1625 RETURN_TF:
                 54   01   D0   08E6  1626          MOVL    #1,R4                    ; Booleans are one byte long
                    FC4E   31   08E9  1627          BRW     EXE$DVI_MOVE_ITEM
                                  08EC  1628 EXE$DVI_RETURN_ZERO::                  ; Integer 0
                      54   D4   08EC  1629          CLRL    R4                       ; Set the zero
                    FC84   31   08EE  1630          BRW     EXE$DVI_VALUE_IN_R4
```

```
                                E 13
                     08F1  1632 ;
                     08F1  1633 ; DVI$_HOST_AVAIL - Host for the primary path is available
                     08F1  1634 ; DVI$_ALT_HOST_AVAIL  - Host for the secondary path is available
                     08F1  1635 ;
                     08F1  1636 SPC_ALT_HOST_AVAIL:
   56    E8 AD   D0  08F1  1637          MOVL    CURRENT_UCB(FP), R6     ; Get the UCB address
E6 3C A6    04   E1  08F5  1638          BBC     #DEV$V_2P, -            ; If the dual-port bit is
                     08FA  1639                  UCB$L_DEVCHAR2(R6), -   ;  clear in the characteristics,
                     08FA  1640                  EXE$DVI_RETURN_FALSE    ;  return a false
E1 3C A6    05   E1  08FA  1641          BBC     #DEV$V_MSCP, -          ; If the MSCP device bit is
                     08FF  1642                  UCB$L_DEVCHAR2(R6), -   ;  clear in the characteristics,
                     08FF  1643                  EXE$DVI_RETURN_FALSE    ;  return a false
DC 3C A6    03   E0  08FF  1644          BBS     #DEV$V_CDP, -           ; If the class driver path bit is
                     0904  1645                  UCB$L_DEVCHAR2(R6), -   ;  set in the characteristics,
                     0904  1646                  EXE$DVI_RETURN_FALSE    ;  return a false (no 2P_CDDB for these)
 56    00C0 C6   D0  0904  1647          MOVL    UCB$L_2P_CDDB(R6), R6   ; Get the CDDB address for the second path
             D5   18  0909  1648          BGEQ    EXE$DVI_RETURN_FALSE    ; Extra paranoia (false if not system addres
             0E   11  090B  1649          BRB     HOST_AVAIL              ; Join the common code
                     090D  1650
                     090D  1651 SPC_HOST_AVAIL:
   56    E8 AD   D0  090D  1652          MOVL    CURRENT_UCB(FP), R6     ; Get the UCB address
C1 3C A6    05   E1  0911  1653          BBC     #DEV$V_MSCP, -          ; If the MSCP device bit is clear, then
                     0916  1654                  UCB$L_DEVCHAR2(R6), -   ;  it is a local path
                     0916  1655                  EXE$DVI_RETURN_TRUE     ;  and always return true
 56    00BC C6   D0  0916  1656          MOVL    UCB$L_CDDB(R6), R6      ; Get the DDB address for the primary path
                     091B  1657 HOST_AVAIL:
C0 12 A6    07   E0  091B  1658          BBS     #CDDB$V_NOCONN, -       ; If the NOCONNECTION bit is set
                     0920  1659                  CDDB$W_STATUS(R6), -    ;  in the status, then it is not avail
                     0920  1660                  EXE$DVI_RETURN_FALSE    ;  and return a false
             B5   11  0920  1661          BRB     EXE$DVI_RETURN_TRUE     ; Set the flag, it is available
```

```
                     0922  1663 ;
                     0922  1664 ; DVI$_HOST_COUNT - Number of hosts serving the device (either 0 or 1)
                     0922  1665 ;
                     0922  1666 $PC_HOST_COUNT:
      54    04   D0   0922  1667         MOVL    #4, R4                  ; Four is length of integer items
   55    E0 AD   9E   0925  1668         MOVAB   SCRATCH(FP), R5         ; Get the pointer to the scratch longword
      65    01   D0   0929  1669         MOVL    #1, (R5)                ; Assume that the device has one server
   56    E8 AD   D0   092C  1670         MOVL    CURRENT_UCB(FP), R6     ; Get the address of the UCB
02 3C A6    04   E1   0930  1671         BBC     #DEV$V_2P, -            ; See if the dual path bit is clear in the
                     0935  1672                 UCB$L_DEVCHAR2(R6), 10$ ;  second characteristics longword
            65   D6   0935  1673         INCL    (R5)                    ; Bump the flag, it has a second path
          FC00   31   0937  1674 10$:     BRW     EXE$DVI_MOVE_ITEM       ; Go move it
                     093A  1675
                     093A  1676 DVI_NULL_ITEM_3:
          FBF6   31   093A  1677         BRW     EXE$DVI_NULL_ITEM
                     093D  1678
                     093D  1679 ;
                     093D  1680 ; DVI$_HOST_NAME - Node name of the host for the primary path
                     093D  1681 ; DVI$_ALT_HOST_NAME  - Node name of the host for the secondary path
                     093D  1682 ;
                     093D  1683 $PC_ALT_HOST_NAME:
   56    E8 AD   D0   093D  1684         MOVL    CURRENT_UCB(FP), R6     ; Get the UCB address
F4 3C A6    04   E1   0941  1685         BBC     #DEV$V_2P, -            ; If the dual-port bit is not
                     0946  1686                 UCB$L_DEVCHAR2(R6), -   ;  set in the characteristics,
                     0946  1687                 DVI_NULL_ITEM_3         ;  return a null string
56    00A0 C6   D0   0946  1688         MOVL    UCB$L_2P_DDB(R6), R6    ; Get the DDB address for the second path
            08   11   094B  1689         BRB     HOST_NAME               ; Join the common code
                     094D  1690 $PC_HOST_NAME:
   56    E8 AD   D0   094D  1691         MOVL    CURRENT_UCB(FP), R6     ; Get the UCB address
   56    28 A6   D0   0951  1692         MOVL    UCB$L_DDB(R6), R6       ; Get the DDB address for the primary path
                     0955  1693 HOST_NAME:
   56    34 A6   D0   0955  1694         MOVL    DDB$L_SB(R6), R6        ; Get the SB address
   54    44 A6   9A   0959  1695         MOVZBL  SB$T_NODENAME(R6), R4   ; Pick up length of ASCIC string
   55    45 A6   9E   095D  1696         MOVAB   SB$T_NODENAME+1(R6), R5 ; Pick up address of ASCIC string
          FBD6   31   0961  1697         BRW     EXE$DVI_MOVE_ITEM       ; Go move the item
                     0964  1698
                     0964  1699 ;
                     0964  1700 ; DVI$_HOST_TYPE - Type of node of the host for the primary path
                     0964  1701 ; DVI$_ALT_HOST_TYPE  - Type of node of the host for the secondary path
                     0964  1702 ;
                     0964  1703 $PC_ALT_HOST_TYPE:
   56    E8 AD   D0   0964  1704         MOVL    CURRENT_UCB(FP), R6     ; Get the UCB address
CD 3C A6    04   E1   0968  1705         BBC     #DEV$V_2P, -            ; If the dual-port bit is not
                     096D  1706                 UCB$L_DEVCHAR2(R6), -   ;  set in the characteristics,
                     096D  1707                 DVI_NULL_ITEM_3         ;  return a null string
56    00A0 C6   D0   096D  1708         MOVL    UCB$L_2P_DDB(R6), R6    ; Get the DDB address for the second path
            08   11   0972  1709         BRB     HOST_TYPE               ; Join the common code
                     0974  1710 $PC_HOST_TYPE:
   56    E8 AD   D0   0974  1711         MOVL    CURRENT_UCB(FP), R6     ; Get the UCB address
   56    28 A6   D0   0978  1712         MOVL    UCB$L_DDB(R6), R6       ; Get the DDB address for the primary path
                     097C  1713 HOST_TYPE:
   56    34 A6   D0   097C  1714         MOVL    DDB$L_SB(R6), R6        ; Get the SB address
   55    34 A6   9E   0980  1715         MOVAB   SB$T_ALTYPE(R6), R5     ; Pick up address of padded string
65    04    20   3A   0984  1716         LOCC    #^A" ", #4, (R5)        ; Look for the first blank
54    04    50   C3   0988  1717         SUBL3   R0, #4, R4              ; R0 contains number of blanks (or zero)
          FBAB   31   098C  1718         BRW     EXE$DVI_MOVE_ITEM       ; Go move the item
```

```
                     098F  1720          .SBTTL  Get UCB from channel or device name
                     098F  1721 ;
                     098F  1722 ; FUNCTIONAL DESCRIPTION:
                     098F  1723 ;
                     098F  1724 ;       Given either the channel or the device name string, return
                     098F  1725 ; the primary UCB/VCB addresses and the secondary UCB/VCB addresses
                     098F  1726 ;
                     098F  1727 ; INPUTS:
                     098F  1728 ;
                     098F  1729 ;       R0 = CHAN if entered at DVI_USE_CHAN
                     098F  1730 ;          = DEVNAM if entered at DVI_USE_DEVNAM
                     098F  1731 ;            Neither the descriptor nor the string have been probed
                     098F  1732 ;       R4 = Current Process PCB Address
                     098F  1733 ;
                     098F  1734 ; OUTPUTS:
                     098F  1735 ;
                     098F  1736 ;       R0 = status
                     098F  1737 ;       STATUS(FP) = Returned success status from IOC$SEARCHDEV
                     098F  1738 ;                  = SS$_NORMAL or SS$_CONCEALED
                     098F  1739 ;                    Only returned when entered at DVI_USE_DEVNAM
                     098F  1740 ;       PRIMARY_UCB(FP) = Address of the primary UCB
                     098F  1741 ;       PRIMARY_VCB(FP) = Address of the primary VCB
                     098F  1742 ;       SECONDARY_UCB(FP) = Address of the secondary UCB
                     098F  1743 ;       SECONDARY_VCB(FP) = Address of the secondary VCB
                     098F  1744 ;
                     098F  1745          .ENABL  LSB
                     098F  1746
                     098F  1747 DVI_USE_CHAN:
00000000'GF   16     098F  1748          JSB     G^IOC$VERIFYCHAN        ; Verify channel number
      6A 50  E9      0995  1749          BLBC    R0,60$                  ; Branch if error
             61  DD  0998  1750          PUSHL   CCB$L_UCB(R1)           ; Get UCB out of CCB
00000000'GF   16     099A  1751          JSB     G^SCH$IOLOCKR           ; Lock I/O database for read access
      D0 AD  D6      09A0  1752          INCL    IOUNLOCK(FP)            ; Note that unlock is required
             02  BA  09A3  1753          POPR    #^M<R1>                 ; Recover UCB address
             37  11  09A5  1754          BRB     30$
50    0144 8F  3C  09A7  1755 10$:     MOVZWL  #SS$_IVDEVNAM,R0        ; Invalid device name error
             54  11  09AC  1756          BRB     60$
      50  0C  D0  09AE  1757 20$:     MOVL    #SS$_ACCVIO,R0          ; Access violation
             4F  11  09B1  1758          BRB     60$
                     09B3  1759 DVI_USE_DEVNAM:
      51  50  D0  09B3  1760          MOVL    R0,R1                   ; Device name string specified?
             EF  13  09B6  1761          BEQL    10$                     ; Branch if not, IVDEVNAM
                     09B8  1762          IFNORD  #8,(R1),20$             ; Branch if descriptor cannot be read
00000000'GF   16     09BE  1763          JSB     G^SCH$IOLOCKR           ; Lock I/O database for read access
      D0 AD  D6      09C4  1764          INCL    IOUNLOCK(FP)            ; Note that unlock is required
                     09C7  1765 ;
                     09C7  1766 ; ***** Note that the device name string still must be probed
                     09C7  1767 ;
00000000'GF   16     09C7  1768          JSB     G^IOC$SEARCHDEV         ; Search for device
      32 50  E9      09CD  1769          BLBC    R0,60$                  ; If error, return status
   D8 AD  50  B0     09D0  1770          MOVW    R0,STATUS(FP)           ; Save success status
                     09D4  1771                                          ; SS$_NORMAL or SS$_CONCEALED
                     09D4  1772
05 3C A1   08  E1     09D4  1773          BBC     S^#DEV$V_RED,UCB$L_DEVCHAR2(R1),30$; Skip if not redirected
                     09D9  1774                                          ; physical terminal UCB
51    00C0 C1  D0     09D9  1775          MOVL    UCB$L_TT_LOGUCB(R1),R1  ; redirect to associated logical tty UCB
                     09DE  1776
```

```
                        09DE  1777 ;
                        09DE  1778 ; R1 = desired UCB
                        09DE  1779 ; If the device has an associated mail box and it is not spooled, then
                        09DE  1780 ; the UCB in the AMB field is the secondary device.  If, however the
                        09DE  1781 ; device is spooled, the AMB field (intermediate device) is the primary
                        09DE  1782 ; device and the final destination device is the secondary.
                        09DE  1783 ;
      52    51    D0    09DE  1784 30$:    MOVL    R1,R2                           ; Assume primary = secondary
   53    60 A1    D0    09E1  1785         MOVL    UCB$L_AMB(R1),R3                ; Get associated mail box if any
         0D    13    09E5  1786         BEQL    50$                             ; Branch if none
05 38 A1    06    E1    09E7  1787         BBC     S^#DEV$V_SPL,UCB$L_DEVCHAR(R1),40$ ; Branch if not spooled
      52    53    D0    09EC  1788         MOVL    R3,R2                           ; Spooled dev, primary = AMB = intermed dev
         03    11    09EF  1789         BRB     50$
      51    53    D0    09F1  1790 40$:    MOVL    R3,R1                           ; Not spooled, secondary = AMB
                        09F4  1791 ;
                        09F4  1792 ; R2 = primary UCB
                        09F4  1793 ; R1 = secondary UCB
                        09F4  1794 ;
   50    F0 AD    DE    09F4  1795 50$:    MOVAL   PRIMARY_UCB(FP),R0              ; Address to store primary UCB/VCB
         09    10    09F8  1796         BSBB    SET_UCB_VCB                     ; Store UCB and VCB
      52    51    D0    09FA  1797         MOVL    R1,R2                           ; Secondary UCB
         04    10    09FD  1798         BSBB    SET_UCB_VCB                     ; Store secondary UCB/VCB
      50    01    D0    09FF  1799         MOVL    #SS$_NORMAL,R0                  ; Set success status
                  05    0A02  1800 60$:    RSB
                        0A03  1801
                        0A03  1802         .DSABL  LSB
                        0A03  1803 ;
                        0A03  1804 ; Store UCB and its associated VCB address if any
                        0A03  1805 ;
                        0A03  1806 ; Inputs:
                        0A03  1807 ;
                        0A03  1808 ;       R2 = UCB address
                        0A03  1809 ;       R0 = address to store UCB/VCB
                        0A03  1810 ;
                        0A03  1811 ; Outputs:
                        0A03  1812 ;
                        0A03  1813 ;       R0 updated to next quad word
                        0A03  1814 ;       R1,R2 preserved
                        0A03  1815 ;       R3 altered
                        0A03  1816 ;       other registers preserved
                        0A03  1817 ;
                        0A03  1818 SET_UCB_VCB:
         53    D4    0A03  1819         CLRL    R3                              ; Assume volume not mounted
04 38 A2    13    E1    0A05  1820         BBC     S^#DEV$V_MNT,UCB$L_DEVCHAR(R2),10$ ; Branch if not mounted
   53    34 A2    D0    0A0A  1821         MOVL    UCB$L_VCB(R2),R3                ; Get VCB address
      80    52    7D    0A0E  1822 10$:    MOVQ    R2,(R0)+                        ; Store UCB/VCB
                  05    0A11  1823         RSB
                        0A12  1824
                        0A12  1825         .END
```

```
$$T1                            = 00000001
ACCVIO                            0000034E R      02
ACCVIO_1                          00000298 R      02
AQB$B_ACPTYPE                   = 00000015
AQB$K_F11V1                     = 00000001
AQB$K_F11V2                     = 00000002
AQB$K_JNL                       = 00000006
AQB$K_MTA                       = 00000003
AQB$K_NET                       = 00000004
AQB$K_REM                       = 00000005
AQB$L_ACPPID                    = 0000000C
ASTADR                          = 00000018
ASTPRM                          = 0000001C
BUG$_KRPEMPTY                     ********    X   02
CCB$C_UCB                       = 00000000
CDDB$V_NOCONN                   = 00000007
CDDB$W_STATUS                   = 00000012
CHAN                            = 00000008
CHAN_DEVNAM                     = 00000004
CTL$GL_KRPFL                      ********    X   02
CTL$GL_PCB                        ********    X   02
CURRENT_UCB                       FFFFFFE8
CURRENT_VCB                     = FFFFFFEC
CVTPID                            00000585 R      02
DC$_DISK                        = 00000001
DC$_TAPE                        = 00000002
DDB$L_ALLOCLS                   = 0000003C
DDB$L_SB                        = 00000034
DDB$T_NAME                      = 00000014
DEV$V_2P                        = 00000004
DEV$V_ALL                       = 00000017
DEV$V_AVL                       = 00000012
DEV$V_CCL                       = 00000001
DEV$V_CDP                       = 00000003
DEV$V_CLU                       = 00000000
DEV$V_DIR                       = 00000003
DEV$V_DMT                       = 00000015
DEV$V_DUA                       = 0000000F
DEV$V_ELG                       = 00000016
DEV$V_FOD                       = 0000000E
DEV$V_FOR                       = 00000018
DEV$V_GEN                       = 00000011
DEV$V_IDV                       = 0000001A
DEV$V_MBX                       = 00000014
DEV$V_MNT                       = 00000013
DEV$V_MSCP                      = 00000005
DEV$V_NET                       = 0000000D
DEV$V_ODV                       = 0000001B
DEV$V_OPR                       = 00000007
DEV$V_RCK                       = 0000001E
DEV$V_RCT                       = 00000008
DEV$V_REC                       = 00000000
DEV$V_RED                       = 00000008
DEV$V_RND                       = 0000001C
DEV$V_RTM                       = 0000001D
DEV$V_RTT                       = 00000002
DEV$V_SDI                       = 00000004
DEV$V_SHR                       = 00000010
DEV$V_SPL                       = 00000006
DEV$V_SQD                       = 00000005
DEV$V_SRV                       = 00000007
DEV$V_SSM                       = 00000006
DEV$V_SWL                       = 00000019
DEV$V_TRM                       = 00000002
DEV$V_WCK                       = 0000001F
DEVNAM                          = 0000000C
DEVTAB                            00000000 R      02
DIB$K_LENGTH                    = 00000074
DIB$L_MAXBLOCK                  = 00000070
DIB$T_DEVNAME                   = 00000024
DIB$W_DEVNAMOFF                 = 0000000E
DIB$W_VOLNAMOFF                 = 00000020
DIR...                          = FFFFFFFF
DVI$C_ACP_F11V1                 = 00000001
DVI$C_ACP_F11V2                 = 00000002
DVI$C_ACP_JNL                   = 00000006
DVI$C_ACP_MTA                   = 00000003
DVI$C_ACP_NET                   = 00000004
DVI$C_ACP_REM                   = 00000005
DVI$_ACPPID                     = 00000040
DVI$_ACPTYPE                    = 00000042
DVI$_ALL                        = 0000006C
DVI$_ALLDEVNAM                  = 000000EC
DVI$_ALLOCLASS                  = 000000F2
DVI$_ALT_HOST_AVAIL             = 000000F4
DVI$_ALT_HOST_NAME              = 000000F6
DVI$_ALT_HOST_TYPE              = 000000F8
DVI$_AVL                        = 00000062
DVI$_CCL                        = 00000048
DVI$_CLUSTER                    = 0000003A
DVI$_CONCEALED                  = 00000044
DVI$_CYLINDERS                  = 00000028
DVI$_DEVBUFSIZ                  = 00000008
DVI$_DEVCHAR                    = 00000002
DVI$_DEVCHAR2                   = 000000E6
DVI$_DEVCLASS                   = 00000004
DVI$_DEVDEPEND                  = 0000000A
DVI$_DEVDEPEND2                 = 0000001C
DVI$_DEVLOCKNAM                 = 000000F0
DVI$_DEVNAM                     = 00000020
DVI$_DEVSTS                     = 000000E4
DVI$_DEVTYPE                    = 00000006
DVI$_DIR                        = 0000004C
DVI$_DMT                        = 00000068
DVI$_DUA                        = 0000005C
DVI$_ELG                        = 0000006A
DVI$_ERRCNT                     = 00000014
DVI$_FOD                        = 0000005A
DVI$_FOR                        = 0000006E
DVI$_FREEBLOCKS                 = 0000002A
DVI$_FULLDEVNAM                 = 000000E8
DVI$_GEN                        = 00000060
DVI$_HOST_AVAIL                 = 000000FA
DVI$_HOST_COUNT                 = 000000FC
```

```
DVI$_HOST_NAME                  = 000000FE
DVI$_HOST_TYPE                  = 00000100
DVI$_IDV                        = 00000072
DVI$_LOCKID                     = 000000EA
DVI$_LOGVOLNAM                  = 0000002C
DVI$_MAXBLOCK                   = 0000001A
DVI$_MAXFILES                   = 0000003C
DVI$_MBX                        = 00000066
DVI$_MEDIA_ID                   = 0000011A
DVI$_MEDIA_NAME                 = 00000116
DVI$_MEDIA_TYPE                 = 00000118
DVI$_MNT                        = 00000064
DVI$_MOUNTCNT                   = 00000038
DVI$_NET                        = 00000058
DVI$_NEXTDEVNAM                 = 00000034
DVI$_ODV                        = 00000074
DVI$_OPCNT                      = 00000016
DVI$_OPR                        = 00000054
DVI$_OWNUIC                     = 00000010
DVI$_PID                        = 0000000E
DVI$_RCK                        = 0000007A
DVI$_RCT                        = 00000056
DVI$_REC                        = 00000046
DVI$_RECSIZ                     = 00000018
DVI$_REFCNT                     = 0000001E
DVI$_REMOTE_DEVICE              = 00000102
DVI$_RND                        = 00000076
DVI$_ROOTDEVNAM                 = 00000032
DVI$_RTM                        = 00000078
DVI$_SDI                        = 0000004E
DVI$_SECTORS                    = 00000024
DVI$_SERIALNUM                  = 0000003E
DVI$_SERVED_DEVICE              = 00000104
DVI$_SHDW_CATCHUP_COPYING       = 00000106
DVI$_SHDW_MASTER                = 00000108
DVI$_SHDW_MASTER_NAME           = 0000010A
DVI$_SHDW_MEMBER                = 0000010C
DVI$_SHDW_MERGE_COPYING         = 0000010E
DVI$_SHDW_NEXT_MBR_NAME         = 00000110
DVI$_SHDW_SPARE_BIT_1           = 0000011C
DVI$_SHDW_SPARE_BIT_2           = 0000011E
DVI$_SHDW_SPARE_INTEGER_1       = 00000124
DVI$_SHDW_SPARE_INTEGER_2       = 00000126
DVI$_SHDW_SPARE_STRING_1        = 00000120
DVI$_SHDW_SPARE_STRING_2        = 00000122
DVI$_SHR                        = 0000005E
DVI$_SPL                        = 00000052
DVI$_SQD                        = 00000050
DVI$_STS                        = 000000E2
DVI$_SWL                        = 00000070
DVI$_TRACKS                     = 00000026
DVI$_TRANSCNT                   = 00000036
DVI$_TRM                        = 0000004A
DVI$_TT_ALTYPEAHD               = 000000B8
DVI$_TT_ANSICRT                 = 000000D6
DVI$_TT_APP_KEYPAD              = 000000D2
DVI$_TT_AUTOBAUD                = 000000AE
DVI$_TT_AVO                     = 000000DC
DVI$_TT_BLOCK                   = 000000DA
DVI$_TT_BRDCSTMBX               = 000000B4
DVI$_TT_CRFILL                  = 00000092
DVI$_TT_DCL_MAILBX              = 000000BC
DVI$_TT_DECCRT                  = 000000E0
DVI$_TT_DECCRT2                 = 00000114
DVI$_TT_DIALUP                  = 000000C4
DVI$_TT_DISCONNECT              = 000000C8
DVI$_TT_DMA                     = 000000B6
DVI$_TT_DRCS                    = 000000CE
DVI$_TT_EDIT                    = 000000DE
DVI$_TT_EDITING                 = 000000BE
DVI$_TT_EIGHTBIT                = 0000009A
DVI$_TT_ESCAPE                  = 00000084
DVI$_TT_FALLBACK                = 000000C2
DVI$_TT_HALFDUP                 = 000000A4
DVI$_TT_HANGUP                  = 000000B0
DVI$_TT_HOSTSYNC                = 00000086
DVI$_TT_INSERT                  = 000000C0
DVI$_TT_LFFILL                  = 00000094
DVI$_TT_LOCALECHO               = 000000AC
DVI$_TT_LOWER                   = 0000008C
DVI$_TT_MBXDSABL                = 0000009C
DVI$_TT_MECHFORM                = 000000A2
DVI$_TT_MECHTAB                 = 0000008E
DVI$_TT_MODEM                   = 000000A6
DVI$_TT_MODHANGUP               = 000000B2
DVI$_TT_NOBRDCST                = 0000009E
DVI$_TT_NOECHO                  = 00000080
DVI$_TT_NOTYPEAHD               = 00000082
DVI$_TT_OPER                    = 000000A8
DVI$_TT_PAGE                    = 000000AA
DVI$_TT_PASSALL                 = 0000007E
DVI$_TT_PASTHRU                 = 000000CA
DVI$_TT_PHYDEVNAM               = 00000112
DVI$_TT_PRINTER                 = 000000D0
DVI$_TT_READSYNC                = 000000A0
DVI$_TT_REGIS                   = 000000D8
DVI$_TT_REMOTE                  = 00000098
DVI$_TT_SCOPE                   = 00000096
DVI$_TT_SCRIPT                  = 0000008A
DVI$_TT_SECURE                  = 000000C6
DVI$_TT_SETSPEED                = 000000BA
DVI$_TT_SIXEL                   = 000000CC
DVI$_TT_SYSPWD                  = 000000D4
DVI$_TT_TTSYNC                  = 00000088
DVI$_TT_WRAP                    = 00000090
DVI$_UNIT                       = 0000000C
DVI$_VOLCOUNT                   = 00000030
DVI$_VOLNAM                     = 00000022
DVI$_VOLNUMBER                  = 0000002E
DVI$_VOLSETMEM                  = 000000EE
DVI$_VPROT                      = 00000012
DVI$_WCK                        = 0000007C
DVI_ACCVIO                        000003B0 R      02
DVI_AQB                           000004ED R      02
```

```
DVI_BADPARAM                    000003BC R      02
DVI_BIT                       = 00000020
DVI_BOOLEAN                     0000051D R      02
DVI_COMPLETE                    00000423 R      02
DVI_C_ANY                     = 00000000
DVI_C_AQB                     = 00000004
DVI_C_BOOLEAN                 = 00000002
DVI_C_CSTRING                 = 00000001
DVI_C_DDB                     = 00000001
DVI_C_DISK                    = 00000001
DVI_C_NEXTDEVNAM              = 00000002
DVI_C_ORB                     = 00000005
DVI_C_ROOTDEVNAM              = 00000001
DVI_C_RVT                     = 00000003
DVI_C_UCB                     = 00000000
DVI_C_VALUE                   = 00000000
DVI_C_VCB                     = 00000002
DVI_C_VOLCOUNT                = 00000000
DVI_DDB                         000004FB R      02
DVI_DECODE_MEDIA_CHAR           00000849 R      02
DVI_DO_ITEM                     00000488 R      02
DVI_ERROR                       000003AE R      02
DVI_ERROR_1                     0000041F R      02
DVI_EXASTCM                     000003B5 R      02
DVI_GET_RVT                     0000072C R      02
DVI_ITEM_TABLE                  0000000F R      02
DVI_K_PRIVATE                 = 00000001
DVI_K_SHAREABLE               = 00000002
DVI_NO_RVT                      000004D8 R      02
DVI_NULL_ITEM_1                 000005B5 R      02
DVI_NULL_ITEM_2                 00000675 R      02
DVI_NULL_ITEM_3                 0000093A R      02
DVI_ORB                         000004F5 R      02
DVI_RVT                         000004DE R      02
DVI_STRUCT                      00000504 R      02
DVI_S_BYTCNT                  = 00000009
DVI_S_DATATYPE                = 00000003
DVI_S_DEVTYPE                 = 00000001
DVI_S_OFFSET                  = 0000000A
DVI_S_POSIT                   = 00000005
DVI_S_SPCLFLG                 = 00000001
DVI_S_STRUCT                  = 00000003
DVI_UCB                         00000501 R      02
DVI_USE_CHAN                    0000098F R      02
DVI_USE_DEVNAM                  000009B3 R      02
DVI_VCB_RVT_AQB                 000004BD R      02
DVI_V_BYTCNT                  = 0000000A
DVI_V_DATATYPE                = 00000016
DVI_V_DEVTYPE                 = 00000019
DVI_V_OFFSET                  = 00000000
DVI_V_POSIT                   = 0000001A
DVI_V_SPCLFLG                 = 0000001F
DVI_V_STRUCT                  = 00000013
EFN                           = 00000004
EXE$C_SYSEFN                    ********   X    02
EXE$DVI_CSTRING                 0000052E RG     02
EXE$DVI_FREEBLOCKS              0000077A RG     02
EXE$DVI_MOVE_ITEM               0000053A RG     02
EXE$DVI_NULL_ITEM               00000533 RG     02
EXE$DVI_RETURN_FALSE            000008E0 RG     02
EXE$DVI_RETURN_TRUE             000008D7 RG     02
EXE$DVI_RETURN_ZERO             000008EC RG     02
EXE$DVI_VALUE                   00000535 RG     02
EXE$DVI_VALUE_IN_R4             00000575 RG     02
EXE$GETCHN                      00000000 RG     03
EXE$GETDEV                      0000000A RG     03
EXE$GETDVI                      00000014 RG     03
EXE$IPID_TO_EPID                ********   X    02
EXE$MNTVER_DVI_ASSIST           ********   X    02
EXE$PROBEW_DSC                  ********   X    02
EXE_GETDEV                      0000025F R      02
EXE_GETDVI                      00000370 R      02
FILBUF                          0000029B R      02
FREEBL                        = FFFFFFE4
HOST_AVAIL                      0000091B R      02
HOST_NAME                       00000955 R      02
HOST_TYPE                       0000097C R      02
IOC$CVT_DEVNAM                  ********   X    02
IOC$GQ_MOUNTLST                 ********   X    02
IOC$SEARCHDEV                   ********   X    02
IOC$UNLOCK                      ********   X    02
IOC$VERIFYCHAN                  ********   X    02
IOSB                          = 00000014
IOUNLOCK                        FFFFFFD0
ITEM_CODE                     = 00000128
ITMLST                        = FFFFFFF0
JIB$L_MTLFL                   = 00000000
KRP                             FFFFFFDC
LCK_FOR                         000005F2 R      02
LKI$_VALBLK                   = 00000203
LNM$LOCKR                       ********   X    02
LNM$UNLOCK                      ********   X    02
LNMB$T_NAME                   = 00000011
MAX_ITEM_CODE                 = 00000127
MOVE_NAME                       00000352 R      02
MTL$B_STATUS                  = 0000000B
MTL$L_LOGNAME                 = 00000010
MTL$L_MTLFL                   = 00000000
MTL$L_UCB                     = 0000000C
MTL$V_VOLSET                  = 00000000
MV_JUMP                         000008A9 R      02
NULARG                        = 00000020
OFFVAL                        = 0000008C
ORB$L_OWNER                   = 00000000
ORB$W_PROT                    = 00000018
PCB$L_JIB                     = 00000080
PCB$L_PID                     = 00000060
PCB$W_ASTCNT                  = 00000038
PR$_IPL                       = 00000012
PRIBUF                        = 0000000C
PRILEN                        = 00000008
PRIMARY_UCB                     FFFFFFF0
PRIMARY_VCB                   = FFFFFFF4
PSL$S_PRVMOD                  = 00000002
```

```
PSL$V_PRVMOD                    = 00000016
PUT4                              0000058B R      02
RETLEN                          = FFFFFFDA
RETLEN_ADR                        FFFFFFE4
RETURN_TF                         000008E6 R      02
RVT$B_NVOLS                     = 0000000B
RVT$L_UCBLST                    = 00000044
RVT$T_VLSLCKNAM                 = 00000018
RVT_NEXTDEVNAM                    000005A8 R      02
RVT_ROOTDEVNAM                    000005A2 R      02
RVT_VOLCNT                        00000575 R      02
SAVABS...                       = FFFFFFD0
SAVED_ASTADR                      FFFFFFD4
SB$T_HWTYPE                     = 00000034
SB$T_NODENAME                   = 00000044
SCDBOF                          = 00000014
SCDLEN                          = 00000010
SCH$CLREF                         ********    X   02
SCH$IOLOCKR                       ********    X   02
SCH$IOUNLOCK                      ********    X   02
SCH$POSTEF                        ********    X   02
SCRATCH                           FFFFFFE0
SCRATCH_SIZE                      FFFFFFDC
SCS$GA_LOCALSB                    ********    X   02
SECONDARY_UCB                   = FFFFFFF8
SECONDARY_VCB                   = FFFFFFFC
SET_UCB_VCB                       00000A03 R      02
SPC2                              000005DA R      02
SPC_ACPPID                        00000590 R      02
SPC_ALLDEVNAM                     000005B8 R      02
SPC_ALT_HOST_AVAIL                000008F1 R      02
SPC_ALT_HOST_NAME                 0000093D R      02
SPC_ALT_HOST_TYPE                 00000964 R      02
SPC_CONCEALED                     00000550 R      02
SPC_DEVLOCKNAM                    000005F9 R      02
SPC_DEVNAM                        000005D7 R      02
SPC_FREEBLOCKS                    0000073E R      02
SPC_FULLDEVNAM                    000005BD R      02
SPC_HOST_AVAIL                    0000090D R      02
SPC_HOST_COUNT                    00000922 R      02
SPC_HOST_NAME                     0000094D R      02
SPC_HOST_TYPE                     00000974 R      02
SPC_LOGVOLNAM                     00000692 R      02
SPC_MEDIA_NAME                    000007AD R      02
SPC_MEDIA_TYPE                    00000860 R      02
SPC_PID                           00000581 R      02
SPC_REMOTE_DEVICE                 000008AF R      02
SPC_SHDW_CATCHUP_COPYING          00000892 R      02
SPC_SHDW_MASTER                   000008C6 R      02
SPC_SHDW_MASTER_NAME              0000089B R      02
SPC_SHDW_MERGE_COPYING            00000892 R      02
SPC_SHDW_NEXT_MBR_NAME            0000089B R      02
SPC_SHDW_SPARE_BIT_1              00000892 R      02
SPC_SHDW_SPARE_BIT_2              00000892 R      02
SPC_SHDW_SPARE_INTEGER_1          000008A2 R      02
SPC_SHDW_SPARE_INTEGER_2          000008A2 R      02
SPC_SHDW_SPARE_STRING_1           0000089B R      02
SPC_SHDW_SPARE_STRING_2           0000089B R      02
SPC_TT_PHYDEVNAM                  000005C1 R      02
SPC_VOLNAM                        00000678 R      02
SPC_VOLNUMBER                     00000567 R      02
SPC_VOLSETMEM                     00000656 R      02
SS$_ACCVIO                      = 0000000C
SS$_BADPARAM                    = 00000014
SS$_BUFFEROVF                   = 00000601
SS$_CONCEALED                   = 00000691
SS$_EXASTLM                     = 00002A04
SS$_IVDEVNAM                    = 00000144
SS$_NORMAL                      = 00000001
STATUS                            FFFFFFD8
SYS$DCLAST                        ********    GX  02
SYS$GETLKIW                       ********    GX  02
TT$V_CRFILL                     = 0000000A
TT$V_EIGHTBIT                   = 0000000F
TT$V_ESCAPE                     = 00000003
TT$V_HALFDUP                    = 00000014
TT$V_HOSTSYNC                   = 00000004
TT$V_LFFILL                     = 0000000B
TT$V_LOWER                      = 00000007
TT$V_MBXDSABL                   = 00000010
TT$V_MECHFORM                   = 00000013
TT$V_MECHTAB                    = 00000008
TT$V_MODEM                      = 00000015
TT$V_NOBRDCST                   = 00000011
TT$V_NOECHO                     = 00000001
TT$V_NOTYPEAHD                  = 00000002
TT$V_OPER                       = 00000016
TT$V_PASSALL                    = 00000000
TT$V_READSYNC                   = 00000012
TT$V_REMOTE                     = 0000000D
TT$V_SCOPE                      = 0000000C
TT$V_SCRIPT                     = 00000006
TT$V_TTSYNC                     = 00000005
TT$V_WRAP                       = 00000009
TT2$V_ALTYPEAHD                 = 00000007
TT2$V_ANSICRT                   = 00000018
TT2$V_APP_KEYPAD                = 00000017
TT2$V_AUTOBAUD                  = 00000001
TT2$V_AVO                       = 0000001B
TT2$V_BLOCK                     = 0000001A
TT2$V_BRDCSTMBX                 = 00000004
TT2$V_DCL_MAILBX                = 00000009
TT2$V_DECCRT                    = 0000001D
TT2$V_DECCRT2                   = 0000001E
TT2$V_DIALUP                    = 0000000F
TT2$V_DISCONNECT                = 00000011
TT2$V_DMA                       = 00000006
TT2$V_DRCS                      = 00000015
TT2$V_EDIT                      = 0000001C
TT2$V_EDITING                   = 0000000C
TT2$V_FALLBACK                  = 0000000E
TT2$V_HANGUP                    = 00000002
TT2$V_INSERT                    = 0000000D
TT2$V_LOCALECHO                 = 00000000
```

```
TT2$V_MODHANGUP                 = 00000003
TT2$V_PASTHRU                   = 00000012
TT2$V_PRINTER                   = 00000016
TT2$V_REGIS                     = 00000019
TT2$V_SECURE                    = 00000010
TT2$V_SETSPEED                  = 00000008
TT2$V_SIXEL                     = 00000014
TT2$V_SYSPWD                    = 00000013
UCB$B_DEVCLASS                  = 00000040
UCB$B_DEVTYPE                   = 00000041
UCB$B_SECTORS                   = 00000044
UCB$B_TRACKS                    = 00000045
UCB$L_2P_CDDB                   = 000000C0
UCB$L_2P_DDB                    = 000000A0
UCB$L_AMB                       = 00000060
UCB$L_CDDB                      = 000000BC
UCB$L_DDB                       = 00000028
UCB$L_DEVCHAR                   = 00000038
UCB$L_DEVCHAR2                  = 0000003C
UCB$L_DEVDEPEND                 = 00000044
UCB$L_DEVDEPND2                 = 00000048
UCB$L_LOCKID                    = 00000020
UCB$L_MAXBLOCK                  = 000000B0
UCB$L_MEDIA_ID                  = 0000008C
UCB$L_OPCNT                     = 00000070
UCB$L_ORB                       = 0000001C
UCB$L_PID                       = 0000002C
UCB$L_STS                       = 00000064
UCB$L_TL_PHYUCB                 = 000000A0
UCB$L_TT_LOGUCB                 = 000000C0
UCB$L_VCB                       = 00000034
UCB$S_MEDIA_ID_N0               = 00000005
UCB$S_MEDIA_ID_N1               = 00000005
UCB$S_MEDIA_ID_N2               = 00000005
UCB$S_MEDIA_ID_NN               = 00000007
UCB$S_MEDIA_ID_T0               = 00000005
UCB$S_MEDIA_ID_T1               = 00000005
UCB$V_MEDIA_ID_N0               = 00000011
UCB$V_MEDIA_ID_N1               = 0000000C
UCB$V_MEDIA_ID_N2               = 00000007
UCB$V_MEDIA_ID_NN               = 00000000
UCB$V_MEDIA_ID_T0               = 0000001B
UCB$V_MEDIA_ID_T1               = 00000016
UCB$W_CYLINDERS                 = 00000046
UCB$W_DEVBUFSIZ                 = 00000042
UCB$W_DEVSTS                    = 00000068
UCB$W_ERRCNT                    = 00000082
UCB$W_MSCPUNIT                  = 000000D4
UCB$W_REFC                      = 0000005C
UCB$W_UNIT                      = 00000054
VALBLK                          = FFFFFFE0
VCB$B_STATUS                    = 0000000B
VCB$L_AQB                       = 00000010
VCB$L_FREE                      = 00000040
VCB$L_MAXFILES                  = 00000044
VCB$L_RVT                       = 00000020
VCB$L_SERIALNUM                 = 00000064
VCB$L_VOLLKID                   = 0000007C
VCB$T_VOLCKNAM                  = 00000080
VCB$T_VOLNAME                   = 00000014
VCB$V_GROUP                     = 00000006
VCB$V_SYSTEM                    = 00000007
VCB$W_CLUSTER                   = 0000003C
VCB$W_MCOUNT                    = 0000004C
VCB$W_RECORDSZ                  = 00000050
VCB$W_RVN                       = 0000000E
VCB$W_TRANS                     = 0000000C
XTYPE                           = 00000000
```

Psect synopsis

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
ABS	FFFFFFF0 (0.)	01 (1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
YF$$SYSGETDVI	00000A12 (2578.)	02 (2.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC BYTE
Y$EXEPAGED	00000019 (25.)	03 (3.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC BYTE

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.06	00:00:01.14
Command processing	118	00:00:00.66	00:00:05.49
Pass 1	784	00:00:43.14	00:01:53.05
Symbol table sort	0	00:00:04.43	00:00:06.65
Pass 2	329	00:00:08.27	00:00:26.52
Symbol table output	60	00:00:00.45	00:00:01.58
Psect synopsis output	2	00:00:00.02	00:00:00.28
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	1324	00:00:57.05	00:02:34.74

The working set limit was 2550 pages.
217209 bytes (425 pages) of virtual memory were used to buffer the intermediate code.
There were 150 pages of symbol table space allocated to hold 2749 non-local and 85 local symbols.
1825 source lines were read in Pass 1, producing 33 object records in Pass 2.
72 pages of virtual memory were used to define 46 macros.

Macro library statistics

Macro library name	Macros defined
_255DUA28:[SYSLIB]SYSBLDMLB.MLB;1	1
_255DUA28:[SYS.OBJ]LIB.MLB;1	19
_255DUA28:[SYSLIB]STARLET.MLB;2	20
TOTALS (all libraries)	40

3321 GETS were required to define 40 macros.

There were no errors, warnings or information messages.

```
MACRO/LIS=LIS$:SYSGETDVI/OBJ=OBJ$:SYSGETDVI MSRC$:SYSGETDVI/UPDATE=(ENH$:SYSGETDVI)+EXECML$/LIB+SYS$LIBRARY:SYSBLDMLB/LIB
```

SYSGETJPI.LIS

SYSERAPAT.LIS

SYSFAO.LIS

SYSGETDVI.LIS

SYSEXIT.LIS

SYSEVTSRV.LIS

SYSFORCEX.LIS