```
                                     H  5

FFFFFFFFFFFFFFF         111               111        XXX         XXX
FFFFFFFFFFFFFFF         111               111        XXX         XXX
FFFFFFFFFFFFFFF         111               111        XXX         XXX
FFF                  111111            111111        XXX         XXX
FFF                  111111            111111        XXX         XXX
FFF                  111111            111111        XXX         XXX
FFF                     111               111           XXX   XXX
FFF                     111               111           XXX   XXX
FFF                     111               111           XXX   XXX
FFFFFFFFFFFF            111               111              XXX
FFFFFFFFFFFF            111               111              XXX
FFFFFFFFFFFF            111               111              XXX
FFF                     111               111           XXX   XXX
FFF                     111               111           XXX   XXX
FFF                     111               111           XXX   XXX
FFF                     111               111        XXX         XXX
FFF                     111               111        XXX         XXX
FFF                     111               111        XXX         XXX
FFF                  111111111         111111111     XXX         XXX
FFF                  111111111         111111111     XXX         XXX
FFF                  111111111         111111111     XXX         XXX
```

```
_$25

Symb
----
IOC$
IO_C
IO_C
IO_D
IO_F
IO_S
KILL

KILL
KILL
LB_E
LB_D
LB_F
LB_M
LB_L
LOCA
LOCA
LOCK

LOCK
LOCK
LOCK
LOC_
LOC_
L_CO
L_CO
L_DA
L_DA
MAIN
MAKE
MAKE
MAKE
MAKE
MAKE
MAKE

MAKE
MAKE
MAP_
MAP_

MAP
MARK
MARK
MARK
MARK
MARK
```

```
                                                                      M 9
**FILE**ID**DELFIL











DDDDDDDD    EEEEEEEEEE  LL          FFFFFFFFFF    IIIIII    LL
DDDDDDDD    EEEEEEEEEE  LL          FFFFFFFFFF    IIIIII    LL
DD      DD  EE          LL          FF                II        LL
DD      DD  EE          LL          FF                II        LL
DD      DD  EE          LL          FF                II        LL
DD      DD  EE          LL          FF                II        LL
DD      DD  EEEEEEEE    LL          FFFFFFFF          II        LL
DD      DD  EEEEEEEE    LL          FFFFFFFF          II        LL
DD      DD  EE          LL          FF                II        LL
DD      DD  EE          LL          FF                II        LL
DD      DD  EE          LL          FF                II        LL
DD      DD  EE          LL          FF                II        LL               ....
DDDDDDDD    EEEEEEEEEE  LLLLLLLLLL  FF            IIIIII    LLLLLLLLLL       ....
DDDDDDDD    EEEEEEEEEE  LLLLLLLLLL  FF            IIIIII    LLLLLLLLLL       ....


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
```

```
0 MODULE DELFIL (
0                   LANGUAGE (BLISS32),
0                   IDENT = 'V04-000'
0                   ) =
1 BEGIN
1
1 !
1 !****************************************************************************
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1 !*                                                                          *
1 !*                                                                          *
1 !****************************************************************************
1
1 !++
1 !
1 ! FACILITY:  F11ACP Structure Level 2
1 !
1 ! ABSTRACT:
1 !
1 !       This module deletes a file, returning its blocks to the storage map
1 !       and releasing the file header.
1 !
1 ! ENVIRONMENT:
1 !
1 !       STARLET operating system, including privileged system services
1 !       and internal exec routines.
1 !
1 !--
1 !
1 !
1 ! AUTHOR:  Andrew C. Goldstein,  CREATION DATE:  4-Apr-1977  15:50
1 !
1 ! MODIFIED BY:
1 !
1 !       V03-012 CDS0008         Christian D. Saether    22-Aug-1984
1 !               Don't complain about directories either (CDS0006).
1 !
1 !       V03-011 ACG0444         Andrew C. Goldstein,    21-Aug-1984  20:43
1 !               Fix error recovery in file ID cache flush code
1 !
```

```
1 !
1 !     V03-010 CDS0007         Christian D. Saether    14-Aug-1984
1 !             Don't complain (CDS0006) about extension headers.
1 !
1 !     V03-009 CDS0006         Christian D. Saether    10-Aug-1094
1 !             Add bugchecks to guard against deleting the wrong file,
1 !             and directories in particular.
1 !
1 !     V03-008 CDS0005         Christian D. Saether    7-Aug-1984
1 !             Replace TOSS_CACHE_DATA call with KILL_BUFFERS call.
1 !
1 !     V03-007 ACG0438         Andrew C. Goldstein,    1-Aug-1984  17:14
1 !             Add cache interlock logic
1 !
1 !     V03-006 ACG0409         Andrew C. Goldstein,    22-Mar-1984  0:08
1 !             Don't invalidate deleted file headers, as they are
1 !             likely to be reused soon, due to the file ID cache.
1 !             Make APPLY_RVN and DEFAULT_RVN macros.
1 !
1 !     V03-005 CDS0004         Christian D. Saether    1-Mar-1984
1 !             Replace call to FLUSH_FID with call to TOSS_CACHE_DATA.
1 !
1 !     V03-004 CDS0003         Christian D. Saether    29-Dec-1983
1 !             Use L_NORM linkage and BIND_COMMON macro.
1 !
1 !     V03-003 CDS0002         Christian D. Saether    13-Sep-1983
1 !             Change interface to allocation serialization.
1 !
1 !     V03-002 CDS0001         Christian D. Saether    13-May-1983
1 !             Serialize file header deletion processing.
1 !
1 !     V03-001 LMP0077         L. Mark Pilant,         31-Jan-1983  10:26
1 !             Eliminate the check made for extension headers as this is
1 !             now done in the DELETE module.  An access conflict error
1 !             will result if an attempt is made to delete a file that
1 !             has one of its extension headers accessed.
1 !
1 !     V02-007 ACG0229         Andrew C. Goldstein,    23-Dec-1981  21:59
1 !             Count file ID cache hits and misses
1 !
1 !     V02-006 ACG0167         Andrew C. Goldstein,    16-Apr-1980  19:25
1 !             Previous revision history moved to F11B.REV
1 !**
1
1
1 LIBRARY 'SYS$LIBRARY:LIB.L32';
1 REQUIRE 'SRC$:FCPDEF.B32';
1
1
1 FORWARD ROUTINE
1       DELETE_FILE      : L_NORM NOVALUE, ! complete file deletion
1       DELETE_FID       : L_NORM NOVALUE, ! just release file header
1       RETURN_FILE_NUM  : L_NORM,         ! return file number to cache
1       REMOVE_FILE_NUM  : L_NORM;         ! remove file numbers from cache
```

```
1 GLOBAL ROUTINE DELETE_FILE (FIB, FILEHEADER) : L_NORM NOVALUE =
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine deletes a file by releasing its blocks to the storage
1 !       bitmap and then releasing the header.
1 !
1 ! CALLING SEQUENCE:
1 !       DELETE_FILE (ARG1, ARG2)
1 !
1 ! INPUT PARAMETERS:
1 !       ARG1: FIB of operation
1 !       ARG2: address of file header buffer
1 !
1 ! IMPLICIT INPUTS:
1 !       NONE
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       NONE
1 !
1 ! SIDE EFFECTS:
1 !       File deleted, storage map and index file bitmap modified, VCB modified
1 !
1 !--
1
2 BEGIN
2
2 MAP
2       FIB             : REF BBLOCK,   ! address of user FIB
2       FILEHEADER      : REF BBLOCK;   ! address of file header
2
2 LOCAL
2       HEADER          : REF BBLOCK,   ! local address of file header
2       FCB             : REF BBLOCK,   ! FCB of header in process
2       FILE_NUMBER,                    ! file number of header being deleted
2       EXT_FID         : BBLOCK [FID$C_LENGTH], ! extension file ID
2       EX_SEGNUM,                      ! header extension segment number
2       FILESIZE;                       ! size of file section
2
2 BIND_COMMON;
2
2 EXTERNAL ROUTINE
2       FILE_SIZE       : L_NORM,       ! compute file section size
2       CHARGE_QUOTA    : L_NORM,       ! charge user's disk quota
2       CHECKSUM        : L_NORM,       ! compute file header checksum
2       SEND_BADSCAN    : L_NORM ADDRESSING_MODE (GENERAL),
2                                       ! start bad block scan process
2       WRITE_BLOCK     : L_NORM,       ! write block to disk
2       TRUNCATE_HEADER : L_NORM,       ! truncate file header
```

```
          NEXT_HEADER     : L_NORM;          ! read next file extension header

HEADER = .FILEHEADER;

IF (.HEADER [FH2$W_SEG_NUM] EQL 0
    AND (.(FIB [FIB$W_FID]) NEQ .(HEADER [FH2$W_FID])    ! fid_num + fid_seq
         OR .FIB [FIB$B_FID_NMX] NEQ .HEADER [FH2$B_FID_NMX]))
THEN
    BUG_CHECK (WRTINVBUF, 'attempted to delete the wrong file');

! If the file is marked bad and is not empty, we do not delete the file,
! but rather send it to the bad block scanner, who will analyze the file and
! delete it piecemeal.
!

IF   .HEADER[FH2$V_BADBLOCK]
AND (    .HEADER[FH2$B_MAP_INUSE] NEQ 0
    OR   .HEADER[FH2$W_EX_FIDNUM] NEQ 0
    OR   .HEADER[FH2$W_EX_FIDRVN] NEQ 0)
THEN
    BEGIN
    CHECKSUM (.HEADER);
    SEND_BADSCAN (HEADER[FH2$W_FID]);
    RETURN;
    END;

! Loop for all headers, releasing the blocks mapped and the headers.
!

WHILE 1 DO
    BEGIN
    FILE_NUMBER = .HEADER[FH2$W_FID_NUM];
    IF .CURRENT_VCB[VCB$V_EXTFID]
    THEN FILE_NUMBER<16,8> = .HEADER[FH2$B_FID_NMX];
    NEW_FID = .FILE_NUMBER;                ! record file number for cleanup
    NEW_FID_RVN = .CURRENT_RVN;

    HEADER[FH2$W_FID_NUM] = 0;             ! deleted header has zero file number
    HEADER[FH2$W_FID_RVN] = 0;
    HEADER[FH2$W_CHECKSUM] = 0;            ! and zero checksum
    FILE_HEADER = 0;
    WRITE_BLOCK (.HEADER);

! Credit the header and the blocks it maps to the owner's disk quota.
!

    FILESIZE = 0;
    IF NOT .CLEANUP_FLAGS[CLF_NOTCHARGED]
    THEN FILESIZE = FILE_SIZE (.HEADER);
    IF NOT .CLEANUP_FLAGS[CLF_HDRNOTCHG]
    THEN FILESIZE = .FILESIZE + 1;
    CHARGE_QUOTA (.HEADER[FH2$L_FILEOWNER], -.FILESIZE, BITLIST (QUOTA_CHARGE));

! Now return the blocks mapped by the header to the storage map.
! Then extract the extension header data.
```

```
;  226         1215 3 !
;  227         1216 3
;  228         1217 3      TRUNCATE_HEADER (.FIB, .HEADER);
;  229         1218 3
;  230         1219 3      EX_SEGNUM = .HEADER[FH2$W_SEG_NUM] + 1;
;  231         1220 3      CH$MOVE (FID$C_LENGTH, HEADER[FH2$W_EXT_FID], EXT_FID);
;  232         1221 3
;  233         1222 3 ! Now free the header in the index file bitmap. Then chain to the next header,
;  234         1223 3 ! if any, and repeat.
;  235         1224 3 !
;  236         1225 3
;  237         1226 3      NEW_FID = 0;
;  238         1227 3      DELETE_FID (.FILE_NUMBER);
;  239         1228 3
;  240         1229 3      HEADER = NEXT_HEADER (0, 0, EXT_FID, .EX_SEGNUM);
;  241         1230 3      IF .HEADER EQL 0 THEN EXITLOOP;
;  242         1231 2      END;
;  243         1232 2
;  244         1233 1 END;                                      ! end of routine DELETE_FILE

                                                            .TITLE  DELFIL
                                                            .IDENT  \V04-000\

                                                            .EXTRN  FILE_SIZE, CHARGE_QUOTA
                                                            .EXTRN  CHECKSUM, SEND_BADSCAN
                                                            .EXTRN  WRITE_BLOCK, TRUNCATE_HEADER
                                                            .EXTRN  NEXT_HEADER, BUG$_WRTINVBUF

                                                            .PSECT  $CODE$,NOWRT,2

                                    03FC 00000              .ENTRY  DELETE_FILE, Save R2,R3,R4,R5,R6,R7,R8,R9   ; 1101
                     5E          08   C2 00002              SUBL2   #8, SP                                      ;
                     56     08   AC   D0 00005              MOVL    FILEHEADER, HEADER                          ; 1161
                            04   A6   B5 00009              TSTW    4(HEADER)                                   ; 1163
                                 16   12 0000C              BNEQ    2$                                          ;
                     50     04   AC   D0 0000E              MOVL    FIB, R0                                     ; 1164
               08    A6     04   A0   D1 00012              CMPL    4(R0), 8(HEADER)                            ;
                                 07   12 00017              BNEQ    1$                                          ;
               0D    A6     09   A0   91 00019              CMPB    9(R0), 13(HEADER)                           ; 1165
                                 04   13 0001E              BEQL    2$                                          ;
                                    FEFF 00020 1$:          BUGW                                                ; 1168
                                   0000* 00022              .WORD   <BUG$_WRTINVBUF!4>                          ;
   21          35    A6          06   E1 00024 2$:          BBC     #6, 53(HEADER), 4$                          ; 1175
                            3A   A6   95 00029              TSTB    58(HEADER)                                  ; 1176
                                 0A   12 0002C              BNEQ    3$                                          ;
                            0E   A6   B5 0002E              TSTW    14(HEADER)                                  ; 1177
                                 05   12 00031              BNEQ    3$                                          ;
                            12   A6   B5 00033              TSTW    18(HEADER)                                  ; 1178
                                 12   13 00036              BEQL    4$                                          ;
                                 56   DD 00038 3$:          PUSHL   HEADER                                      ; 1181
            0000G    CF          01   FB 0003A              CALLS   #1, CHECKSUM                                ;
                            08   A6   9F 0003F              PUSHAB  8(HEADER)                                   ; 1182
        00000000G    00          01   FB 00042              CALLS   #1, SEND_BADSCAN                            ;
                                      04 00049              RET                                                 ; 1180
                     57     08   A6   3C 0004A 4$:          MOVZWL  8(HEADER), FILE_NUMBER                      ; 1191
                     50     98   AA   D0 0004E              MOVL    -104(BASE), R0                              ; 1192
```

```
              06     0B    A0           05  E1 00052      BBC     #5, 11(R0), 5$                             ;
     57       08           10     0D    A6  F0 00057      INSV    13(HEADER), #16, #8, FILE_NUMBER           ; 1193
                    A8     AA           57  D0 0005D 5$:  MOVL    FILE_NUMBER, -88(BASE)                     ; 1194
                    AC     AA     A0    AA  D0 00061      MOVL    -96(BASE), -84(BASE)                       ; 1195
                                  08    A6  B4 00066      CLRW    8(HEADER)                                  ; 1197
                                  0C    A6  B4 00069      CLRW    12(HEADER)                                 ; 1198
                                01FE    C6  B4 0006C      CLRW    510(HEADER)                                ; 1199
                                  04    AA  D4 00070      CLRL    4(BASE)                                    ; 1200
                                        56  DD 00073      PUSHL   HEADER                                     ; 1201
                  0000G    CF           01  FB 00075      CALLS   #1, WRITE_BLOCK                            ;
                                        58  D4 0007A      CLRL    FILESIZE                                   ; 1206
              0A           6A           1D  E0 0007C      BBS     #29, (BASE), 6$                            ; 1207
                                        56  DD 00080      PUSHL   HEADER                                     ; 1208
                  0000G    CF           01  FB 00082      CALLS   #1, FILE_SIZE                              ;
                           58           50  D0 00087      MOVL    R0, FILESIZE                               ;
              02           6A           1B  E0 0008A 6$:  BBS     #27, (BASE), 7$                            ; 1209
                                        58  D6 0008E      INCL    FILESIZE                                   ; 1210
                                        02  DD 00090 7$:  PUSHL   #2                                         ; 1211
                           7E           58  CE 00092      MNEGL   FILESIZE, -(SP)                            ;
                                  3C    A6  DD 00095      PUSHL   60(HEADER)                                 ;
                  0000G    CF           03  FB 00098      CALLS   #3, CHARGE_QUOTA                           ;
                                        56  DD 0009D      PUSHL   HEADER                                     ; 1217
                                  04    AC  DD 0009F      PUSHL   FIB                                        ;
                  0000G    CF           02  FB 000A2      CALLS   #2, TRUNCATE_HEADER                        ;
                           59     04    A6  3C 000A7      MOVZWL  4(HEADER), EX_SEGNUM                       ; 1219
                                        59  D6 000AB      INCL    EX_SEGNUM                                  ;
              6E     0E    A6           06  28 000AD      MOVC3   #6, 14(HEADER), EXT_FID                    ; 1220
                                  A8    AA  D4 000B2      CLRL    -88(BASE)                                  ; 1226
                                        57  DD 000B5      PUSHL   FILE_NUMBER                                ; 1227
                  0000V    CF           01  FB 000B7      CALLS   #1, DELETE_FID                             ;
                                        59  DD 000BC      PUSHL   EX_SEGNUM                                  ; 1229
                                  04    AE  9F 000BE      PUSHAB  EXT_FID                                    ;
                                        7E  7C 000C1      CLRQ    -(SP)                                      ;
                  0000G    CF           04  FB 000C3      CALLS   #4, NEXT_HEADER                            ;
                           56           50  D0 000C8      MOVL    R0, HEADER                                 ;
                                        03  13 000CB      BEQL    8$                                         ; 1230
                                FF7A    31  000CD         BRW     4$                                         ;
                                            04 000D0 8$:  RET                                                ; 1233

; Routine Size:  209 bytes,    Routine Base:  $CODE$ + 0000
```

```
1 GLOBAL ROUTINE DELETE_FID (FILENUM) : L_NORM NOVALUE =
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine marks the indicated file header free in the index
1 !       file bitmap.
1 !
1 ! CALLING SEQUENCE:
1 !       DELETE_HEADER (ARG1)
1 !
1 ! INPUT PARAMETERS:
1 !       ARG1: file number of header
1 !
1 ! IMPLICIT INPUTS:
1 !       CURRENT_VCB: VCB of volume
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       NONE
1 !
1 ! SIDE EFFECTS:
1 !       Header deleted - index file bitmap & VCB altered
1 !
1 !--
1
2 BEGIN
2
2 BUILTIN
2       FP;
2
2 LOCAL
2       CACHE           : REF BBLOCK,   ! address of cache block
2       FID_CACHE       : REF BBLOCK,   ! address of file number cache
2       LOCK_STATUS     : VECTOR [2],   ! lock status block
2       VBN,                            ! relative block in bitmap
2       BEST_VBN,                       ! best block to return bits to
2       COUNT,                          ! number of FID's in current block
2       BEST_COUNT,                     ! number if FID's in best block
2       BLOCK,                          ! block number of current entry
2       BUFFER;                         ! bitmap buffer
2
2 EXTERNAL
2       PMS$GL_FIDHIT   : ADDRESSING_MODE (GENERAL),
2                                       ! count of file ID cache hits
2       PMS$GL_FIDMISS  : ADDRESSING_MODE (GENERAL);
2                                       ! count of file ID cache misses
2
2 BIND_COMMON;
2
2 EXTERNAL ROUTINE
```

```
2                 ALLOCATION_LOCK : L_NORM,
2                 INIT_FID_CACHE  : L_NORM,          ! initialize file ID cache lock
2                 READ_BLOCK      : L_NORM,          ! read a block from the disk
2                 WRITE_BLOCK     : L_NORM,          ! write it back
2                 ZERO_ON_ERROR;                     ! return zero on error signal (handler)
2
2     ! Serialize against other storage or file header allocation/deallocation
2     ! operations.
2     !
2
2     ALLOCATION_LOCK ();
2
2     ! If this is not a flush call, we delete the file number by returning it
2     ! to the file number cache. If the cache fills up, the kernel mode routine
2     ! returns LBC. We then scan the cache, looking for the largest group of file
2     ! numbers that are all in the same bitmap block (up to half of the cache),
2     ! and then flush those from the cache. If this is a cache flush call or
2     ! the volume is marked for dismount, however, we flush the entire cache.
2     !
2
2     CACHE = .CURRENT_VCB[VCB$L_CACHE];
2     FID_CACHE = .CACHE[VCA$L_FIDCACHE];
2
2     IF .FILENUM NEQ 0
2     THEN
3         BEGIN
3         IF NOT .CACHE[VCA$V_FIDC_VALID]
3         THEN INIT_FID_CACHE (.CACHE);
4         IF KERNEL_CALL (RETURN_FILE_NUM, .FILENUM)
3         THEN
4             BEGIN
4             PMS$GL_FIDHIT = .PMS$GL_FIDHIT + 1;
4             RETURN;
3             END;
2         END;
2
2     IF .FILENUM NEQ 0
2     AND .CACHE[VCA$V_FIDC_VALID]
2     THEN
3         BEGIN
3         PMS$GL_FIDMISS = .PMS$GL_FIDMISS + 1;
3         BEST_COUNT = 0;
3         VBN = -1;
3         INCR J FROM 1 TO .FID_CACHE[VCA$W_FIDCOUNT]
3         DO
4             BEGIN
4             BLOCK = (.VECTOR [FID_CACHE[VCA$L_FIDLIST], .J-1] - 1) / 4096;
4             IF .BLOCK NEQ .VBN
4             THEN
5                 BEGIN
5                 VBN = .BLOCK;
5                 COUNT = 0;
4                 END;
4             COUNT = .COUNT + 1;
4             IF .COUNT GTRU .BEST_COUNT
4             THEN
5                 BEGIN
```

```
;  360        1348 5                  BEST_COUNT = .COUNT;
;  361        1349 5                  BEST_VBN = .VBN;
;  362        1350 4                  END;
;  363        1351 4              IF .BEST_COUNT GEQU .FID_CACHE[VCA$W_FIDCOUNT]/2
;  364        1352 4              THEN EXITLOOP;
;  365        1353 3              END;
;  366        1354 3
;  367        1355 3  ! Read the appropriate block, return the desired number of file numbers to
;  368        1356 3  ! it, and write it back.
;  369        1357 3  !
;  370        1358 3
;  371        1359 3      IF .BEST_VBN GEQU .CURRENT_VCB[VCB$B_IBMAPSIZE]
;  372        1360 3      THEN BUG_CHECK (BADFID, FATAL, 'ACP file number out of range for this volume');
;  373        1361 3
;  374        1362 3      BUFFER = READ_BLOCK (.BEST_VBN + .CURRENT_VCB[VCB$L_IBMAPLBN], 1, INDEX_TYPE);
;  375        1363 3      KERNEL_CALL (REMOVE_FILE_NUM, .BEST_COUNT, .BEST_VBN, .BUFFER);
;  376        1364 3      WRITE_BLOCK (.BUFFER);
;  377        1365 3      END
;  378        1366 3
;  379        1367 3  ! If this is a cache flush, loop for all the blocks represented in the
;  380        1368 3  ! cache, read the block, return the file numbers, and write it. Then
;  381        1369 3  ! mark the cache invalid, and release the cache lock if there is one.
;  382        1370 3  ! This operation is done under a handler to ensure its completion in
;  383        1371 3  ! the face of I/O errors.
;  384        1372 3  !
;  385        1373 3
;  386        1374 2  ELSE
;  387        1375 3      BEGIN
;  388        1376 3      .FP = ZERO_ON_ERROR;
;  389        1377 3      UNTIL .FID_CACHE[VCA$W_FIDCOUNT] EQL 0
;  390        1378 3      DO
;  391        1379 4          BEGIN
;  392        1380 4          VBN = (.FID_CACHE[VCA$L_FIDLIST] - 1) / 4096;
;  393        1381 4          IF .VBN GEQU .CURRENT_VCB[VCB$B_IBMAPSIZE]
;  394        1382 4          THEN BUG_CHECK (BADFID, FATAL, 'ACP file number out of range for this volume');
;  395        1383 4
;  396        1384 4          BUFFER = READ_BLOCK (.VBN + .CURRENT_VCB[VCB$L_IBMAPLBN], 1, INDEX_TYPE);
;  397        1385 4          IF .BUFFER NEQ 0
;  398        1386 4          THEN
;  399        1387 5              BEGIN
;  400        1388 5              KERNEL_CALL (REMOVE_FILE_NUM, 0, .VBN, .BUFFER);
;  401        1389 5              WRITE_BLOCK (.BUFFER);
;  402        1390 5              END
;  403        1391 4          ELSE
;  404        1392 4              FID_CACHE[VCA$W_FIDCOUNT] = 0;
;  405        1393 3          END;
;  406        1394 3      IF .FID_CACHE[VCA$L_FIDCLKID] NEQ 0
;  407        1395 3      THEN
;  408        1396 4          BEGIN
;  409        1397 4          LOCK_STATUS[1] = .FID_CACHE[VCA$L_FIDCLKID];
;  410      P 1398 4          IF NOT $ENQW (EFN    = EFN,
;  411      P 1399 4                      LKMODE = LCK$K_NLMODE,
;  412      P 1400 4                      FLAGS  = LCK$M_NOQUEUE OR LCK$M_SYNCSTS OR LCK$M_CONVERT OR LCK$M_CVTSYS,
;  413      P 1401 4                      LKSB   = LOCK_STATUS
;  414        1402 5                      )
;  415        1403 4          THEN BUG_CHECK (XQPERR, FATAL, 'Unexpected lock manager error');
;  416        1404 3          END;
```

```
DELFIL                                           J 10
V04-000                                  16-Sep-1984 00:17:11    VAX-11 Bliss-32 V4.0-742                    Page  10
                                         14-Sep-1984 12:30:16    DISK$VMSMASTER:[F11X.SRC]DELFIL.B32;1         (3)

;  417       1405  3     CACHE[VCA$V_FIDC_VALID] = 0;
;  418       1406  2     END;
;  419       1407  2
;  420       1408  1 END;                               ! end of routine DELETE_HEADER



                                                              .EXTRN   PMS$GL_FIDHIT, PMS$GL_FIDMISS
                                                              .EXTRN   ALLOCATION_LOCK
                                                              .EXTRN   INIT_FID_CACHE, READ_BLOCK
                                                              .EXTRN   ZERO_ON_ERROR, BUG$_BADFID
                                                              .EXTRN   SYS$ENQW, BUG$_XQPERR

                                     0BFC 00000               .ENTRY   DELETE_FID, Save R2,R3,R4,R5,R6,R7,R8,R9,-   ; 1234
                                                                       R11                                           ;
                 5E            08   C2 00002                  SUBL2    #8, SP                                        ;
                         98    AA   9F 00005                  PUSHAB   -104(BASE)                                    ; 1285
          0000G  CF            00   FB 00008                  CALLS    #0, ALLOCATION_LOCK                           ; 1301
                 50      00    BE   D0 0000D                  MOVL     @0(SP), R0                                    ; 1311
                 54      58    A0   D0 00011                  MOVL     88(R0), CACHE                                 ;
                 52            64   D0 00015                  MOVL     (CACHE), FID_CACHE                            ; 1312
                         04    AC   D5 00018                  TSTL     FILENUM                                       ; 1314
                               1D   13 0001B                  BEQL     2$                                            ;
                 07      0B    A4   E8 0001D                  BLBS     11(CACHE), 1$                                 ; 1317
                               54   DD 00021                  PUSHL    CACHE                                         ; 1318
          0000G  CF            01   FB 00023                  CALLS    #1, INIT_FID_CACHE                            ;
                         04    AC   DD 00028 1$:              PUSHL    FILENUM                                       ; 1319
          0000V  CF            01   FB 0002B                  CALLS    #1, RETURN_FILE_NUM                           ;
                 07            50   E9 00030                  BLBC     R0, 2$                                        ;
                    00000000G  00   D6 00033                  INCL     PMS$GL_FIDHIT                                 ; 1322
                                    04 00039                  RET                                                    ; 1321
                         04    AC   D5 0003A 2$:              TSTL     FILENUM                                       ; 1327
                               03   12 0003D                  BNEQ     4$                                            ;
                             0087   31 0003F 3$:              BRW      11$                                           ;
                 F9      0B    A4   E9 00042 4$:              BLBC     11(CACHE), 3$                                 ; 1328
                    00000000G  00   D6 00046                  INCL     PMS$GL_FIDMISS                                ; 1331
                               58   D4 0004C                  CLRL     BEST_COUNT                                    ; 1332
                 53            01   CE 0004E                  MNEGL    #1, VBN                                       ; 1333
                 5B      02    A2   3C 00051                  MOVZWL   2(FID_CACHE), R11                             ; 1334
                 56      24    A2   9E 00055                  MOVAB    36(FID_CACHE), R6                             ; 1337
                               50   D4 00059                  CLRL     J                                             ;
                               31   11 0005B                  BRB      8$                                            ;
     51          FC A640       01   C3 0005D 5$:              SUBL3    #1, -4(R6)[J], R1                             ;
     59          51 00001000   8F   C7 00063                  DIVL3    #4096, R1, BLOCK                              ;
                 53            59   D1 0006B                  CMPL     BLOCK, VBN                                    ; 1338
                               05   13 0006E                  BEQL     6$                                            ;
                 53            59   D0 00070                  MOVL     BLOCK, VBN                                    ; 1341
                               57   D4 00073                  CLRL     COUNT                                         ; 1342
                               57   D6 00075 6$:              INCL     COUNT                                         ; 1344
                 58            57   D1 00077                  CMPL     COUNT, BEST_COUNT                             ; 1345
                               06   1B 0007A                  BLEQU    7$                                            ;
                 58            57   D0 0007C                  MOVL     COUNT, BEST_COUNT                             ; 1348
                 55            53   D0 0007F                  MOVL     VBN, BEST_VBN                                 ; 1349
                 51      02    A2   3C 00082 7$:              MOVZWL   2(FID_CACHE), R1                              ; 1351
                 51            02   C6 00086                  DIVL2    #2, R1                                        ;
                 51            58   D1 00089                  CMPL     BEST_COUNT, R1                                ;
                               04   1E 0008C                  BGEQU    9$                                            ;
                    CB          50          5B  F3 0008E 8$:    AOBLEQ  R11, J, 5$                         ; 1334
                                50      00  BE  D0 00092 9$:    MOVL    @0(SP), R0                         ; 1359
      55      38    A0          08          00  ED 00096        CMPZV   #0, #8, 56(R0), BEST_VBN
                                            04  1A 0009C        BGTRU   10$
                                              FEFF 0009E        BUGW                                       ; 1360
                                             0000* 000A0        .WORD   <BUG$_BADFID!4>
                                            03  DD 000A2 10$:   PUSHL   #3                                 ; 1362
                                            01  DD 000A4        PUSHL   #1
                                50      08  BE  D0 000A6        MOVL    @8(SP), R0
                                      30 B045   9F 000AA        PUSHAB  @48(R0)[BEST_VBN]
                       0000G  CF            03  FB 000AE        CALLS   #3, READ_BLOCK
                              57            50  D0 000B3        MOVL    R0, BUFFER
                                  00A0      8F  BB 000B6        PUSHR   #^M<R5,R7>                         ; 1363
                                            58  DD 000BA        PUSHL   BEST_COUNT
                       0000V  CF            03  FB 000BC        CALLS   #3, REMOVE_FILE_NUM
                                            57  DD 000C1        PUSHL   BUFFER                             ; 1364
                       0000G  CF            01  FB 000C3        CALLS   #1, WRITE_BLOCK
                                                04 000C8        RET                                        ; 1327
                              6D   0000G    CF  9E 000C9 11$:   MOVAB   ZERO_ON_ERROR, (FP)                ; 1376
                                        02  A2  B5 000CE 12$:   TSTW    2(FID_CACHE)                       ; 1377
                                            4C  13 000D1        BEQL    15$
                    50        24    A2      01  C3 000D3        SUBL3   #1, 36(FID_CACHE), R0              ; 1380
                    53          50 00001000 8F  C7 000D8        DIVL3   #4096, R0, VBN
                                50      00  BE  D0 000E0        MOVL    @0(SP), R0                         ; 1381
      53      38    A0          08          00  ED 000E4        CMPZV   #0, #8, 56(R0), VBN
                                            04  1A 000EA        BGTRU   13$
                                              FEFF 000EC        BUGW                                       ; 1382
                                             0000* 000EE        .WORD   <BUG$_BADFID!4>
                                            03  DD 000F0 13$:   PUSHL   #3                                 ; 1384
                                            01  DD 000F2        PUSHL   #1
                                50      08  BE  D0 000F4        MOVL    @8(SP), R0
                                      30 B043   9F 000F8        PUSHAB  @48(R0)[VBN]
                       0000G  CF            03  FB 000FC        CALLS   #3, READ_BLOCK
                              57            50  D0 00101        MOVL    R0, BUFFER
                                            14  13 00104        BEQL    14$                                ; 1385
                                  0088      8F  BB 00106        PUSHR   #^M<R3,R7>                         ; 1388
                                            7E  D4 0010A        CLRL    -(SP)
                       0000V  CF            03  FB 0010C        CALLS   #3, REMOVE_FILE_NUM
                                            57  DD 00111        PUSHL   BUFFER                             ; 1389
                       0000G  CF            01  FB 00113        CALLS   #1, WRITE_BLOCK
                                            B4  11 00118        BRB     12$                                ; 1385
                                        02  A2  B4 0011A 14$:   CLRW    2(FID_CACHE)                       ; 1392
                                            AF  11 0011D        BRB     12$                                ; 1377
                                        04  A2  D5 0011F 15$:   TSTL    4(FID_CACHE)                       ; 1394
                                            25  13 00122        BEQL    16$
                          08  AE        04  A2  D0 00124        MOVL    4(FID_CACHE), LOCK_STATUS+4        ; 1397
                                            7E  7C 00129        CLRQ    -(SP)                              ; 1402
                                            7E  7C 0012B        CLRQ    -(SP)
                                            7E  7C 0012D        CLRQ    -(SP)
                                            7E  D4 0012F        CLRL    -(SP)
                              7E        4E  8F  9A 00131        MOVZBL  #78, -(SP)
                                        24  AE  9F 00135        PUSHAB  LOCK_STATUS
                              7E            1E  7D 00138        MOVQ    #30, -(SP)
                   00000000G  00            0B  FB 0013B        CALLS   #11, SYS$ENQW
                              04            50  E8 00142        BLBS    R0, 16$
                                              FEFF 00145        BUGW                                       ; 1403
                                             0000* 00147        .WORD   <BUG$_XQPERR!4>
```

```
                        0B   A4            01  8A 00149 16$:    BICB2   #1, 11(CACHE)                                ; 1405
                                               04 0014D         RET                                                  ; 1408

; Routine Size:  334 bytes,    Routine Base:  $CODE$ + 00D1
```

```
1 ROUTINE RETURN_FILE_NUM (FILE_NUMBER) : L_NORM =
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine returns a file number to the volume's file number
1 !       cache. If the cache fills up as a result, it also sorts the
1 !       entries and returns failure status to signal the caller that the
1 !       cache should be emptied.
1 !
1 !
1 ! CALLING SEQUENCE:
1 !       RETURN_FILE_NUM (ARG1)
1 !
1 ! INPUT PARAMETERS:
1 !       ARG1: file number to return
1 !
1 ! IMPLICIT INPUTS:
1 !       CURRENT_VCB: VCB of volume
1 !       CURRENT_UCB: UCB of volume
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       1 if success
1 !       0 if cache is now full
1 !
1 ! SIDE EFFECTS:
1 !       file ID cache modified
1 !
1 !--
1
2 BEGIN
2
2 LOCAL
2       CACHE           : REF BBLOCK,   ! address of cache block
2       FID_CACHE       : REF BBLOCK,   ! address of file number cache
2       J;                              ! cache index
2
2 BIND_COMMON;
2
2
2 ! Scan the cache for an entry higher than the file number being returned.
2 ! Shuffle the cache upward and insert the file number in order. If the
2 ! cache fills up, return failure to cause a cache flush.
2 !
2
2 CACHE = .CURRENT_VCB[VCB$L_CACHE];
2 FID_CACHE = .CACHE[VCA$L_FIDCACHE];
2 J = 0;
2 UNTIL .J GEQU .FID_CACHE[VCA$W_FIDCOUNT]
2 DO
```

```
;  479        1466  3          BEGIN
;  480        1467  3          IF .VECTOR [FID_CACHE[VCA$L_FIDLIST], .J] GTRU .FILE_NUMBER
;  481        1468  3          THEN EXITLOOP;
;  482        1469  3          IF .VECTOR [FID_CACHE[VCA$L_FIDLIST], .J] EQL .FILE_NUMBER
;  483        1470  3          THEN RETURN 1;
;  484        1471  3          J = .J + 1;
;  485        1472  2          END;
;  486        1473  2
;  487        1474  2   CH$MOVE ((.FID_CACHE[VCA$W_FIDCOUNT]-.J)*4,
;  488        1475  2            VECTOR [FID_CACHE[VCA$L_FIDLIST], .J],
;  489        1476  2            VECTOR [FID_CACHE[VCA$L_FIDLIST], .J+1]);
;  490        1477  2   VECTOR [FID_CACHE[VCA$L_FIDLIST], .J] = .FILE_NUMBER;
;  491        1478  2   FID_CACHE[VCA$W_FIDCOUNT] = .FID_CACHE[VCA$W_FIDCOUNT] + 1;
;  492        1479  2
;  493        1480  2   .FID_CACHE[VCA$W_FIDCOUNT] LSSU .FID_CACHE[VCA$W_FIDSIZE]
;  494        1481  2   AND .CACHE[VCA$V_FIDC_VALID]
;  495        1482  2
;  496        1483  1   END;                                       ! end of routine RETURN_FILE_NUM



                                          01FC 00000 RETURN_FILE_NUM:
                                                                .WORD   Save R2,R3,R4,R5,R6,R7,R8                          ; 1409
                        50      98   AA  D0 00002               MOVL    -104(BASE), R0                                     ; 1461
                        58      58   A0  D0 00006               MOVL    88(R0), CACHE                                      ;
                        56           68  D0 0000A               MOVL    (CACHE), FID_CACHE                                 ; 1462
                                     57  D4 0000D               CLRL    J                                                  ; 1463
                        50      24   A6  9E 0000F               MOVAB   36(FID_CACHE), R0                                  ; 1467
      57       02   A6          10       00 ED 00013  1$:       CMPZV   #0, #16, 2(FID_CACHE), J                           ; 1464
                                     11  1B 00019               BLEQU   3$                                                 ;
                   04   AC         6047  D1 0001B               CMPL    (R0)[J], FILE_NUMBER                               ; 1467
                                     0A  1A 00020               BGTRU   3$                                                 ;
                                     04  12 00022               BNEQ    2$                                                 ; 1469
                        50           01  D0 00024               MOVL    #1, R0                                             ; 1470
                                         04 00027               RET                                                        ;
                                     57  D6 00028  2$:          INCL    J                                                  ; 1471
                                     E7  11 0002A               BRB     1$                                                 ; 1464
                        51      02   A6  3C 0002C  3$:          MOVZWL  2(FID_CACHE), R1                                   ; 1474
                        51           57  C2 00030               SUBL2   J, R1                                              ;
                        51           04  C4 00033               MULL2   #4, R1                                             ;
                           04 A047       DF 00036               PUSHAL  4(R0)[J]                                           ; 1476
                                 6047    DF 0003A               PUSHAL  (R0)[J]                                            ;
                9E      9E           51  28 0003D               MOVC3   R1, @(SP)+, @(SP)+                                 ;
                   24 A647      04   AC  D0 00041               MOVL    FILE_NUMBER, 36(FID_CACHE)[J]                      ; 1477
                                02   A6  B6 00047               INCW    2(FID_CACHE)                                       ; 1478
                                     50  D4 0004A               CLRL    R0                                                 ; 1480
                        66      02   A6  B1 0004C               CMPW    2(FID_CACHE), (FID_CACHE)                          ;
                                     02  1E 00050               BGEQU   4$                                                 ;
                                     50  D6 00052               INCL    R0                                                 ;
      51       0B   A8          01   00  EF 00054  4$:          EXTZV   #0, #1, 11(CACHE), R1                              ; 1481
                        51           51  D2 0005A               MCOML   R1, R1                                             ;
                        50           51  CA 0005D               BICL2   R1, R0                                             ;
                                         04 00060               RET                                                        ; 1483

; Routine Size:  97 bytes,    Routine Base:  $CODE$ + 021F
```

```
1 ROUTINE REMOVE_FILE_NUM (COUNT, VBN, BUFFER) : L_NORM =
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine removes the specified entries from the file ID cache
1 !       and marks then free in the index file bitmap block supplied.
1 !
1 !
1 ! CALLING SEQUENCE:
1 !       REMOVE_FILE_NUM (ARG1, ARG2, ARG3)
1 !
1 ! INPUT PARAMETERS:
1 !       ARG1: number of entrues to remove (0 to remove all)
1 !       ARG2: VBN of bitmap buffer
1 !       ARG3: address of bitmap buffer
1 !
1 ! IMPLICIT INPUTS:
1 !       CURRENT_VCB: address of volume VCB
1 !
1 ! OUTPUT PARAMETERS:
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       1
1 !
1 ! SIDE EFFECTS:
1 !       file ID cache altered, bitmap buffer modified
1 !
1 !--
1
2 BEGIN
2
2 MAP
2       BUFFER          : REF BITVECTOR; ! bitmap buffer
2
2 LOCAL
2       FID_CACHE       : REF BBLOCK,   ! address of file number cache
2       K,                              ! counter of entries removed
2       J,                              ! index into cache
2       FILE_NUMBER,                    ! file number-1 of entry
2       BITPOS;                         ! bit position in buffer
2
2 BIND_COMMON;
2
2 ! Scan the file ID cache for entries whose bitmap VBN match those of the
2 ! buffer. When one is found, clear the corresponding bit in the bitmap,
2 ! decrement the count in the cache, and shuffle down the remaining entries
2 ! to keep the cache compacted.
2 !
2
2 FID_CACHE = .BBLOCK [.CURRENT_VCB[VCB$L_CACHE], VCA$L_FIDCACHE];
2 K = .COUNT;
```

```
;  555         1541 2 J = 1;
;  556         1542 2 DO
;  557         1543 3     BEGIN
;  558         1544 3     FILE_NUMBER = .VECTOR [FID_CACHE[VCA$L_FIDLIST], .J-1] - 1;
;  559         1545 3     IF .FILE_NUMBER / 4096 EQL .VBN
;  560         1546 3     THEN
;  561         1547 4         BEGIN
;  562         1548 4         BITPOS = .FILE_NUMBER<0,12>;
;  563         1549 4         BUFFER[.BITPOS] = 0;
;  564         1550 4         CH$MOVE ((.FID_CACHE[VCA$W_FIDCOUNT]-.J)*4,
;  565         1551 4                  VECTOR [FID_CACHE[VCA$L_FIDLIST], .J],
;  566         1552 4                  VECTOR [FID_CACHE[VCA$L_FIDLIST], .J-1]);
;  567         1553 4         FID_CACHE[VCA$W_FIDCOUNT] = .FID_CACHE[VCA$W_FIDCOUNT] - 1;
;  568         1554 4         J = .J - 1;
;  569         1555 4         K = .K - 1;
;  570         1556 3         END;
;  571         1557 3     J = .J + 1;
;  572         1558 3     END
;  573         1559 2 UNTIL .K EQL 0 OR .J GTRU .FID_CACHE[VCA$W_FIDCOUNT];
;  574         1560 2
;  575         1561 2 ! If we have freed file numbers in a block that precedes the current bitmap
;  576         1562 2 ! scan point, reset the scan point.
;  577         1563 2 !
;  578         1564 2
;  579         1565 2 IF .VBN LSSU .CURRENT_VCB[VCB$B_IBMAPVBN]
;  580         1566 2 THEN CURRENT_VCB[VCB$B_IBMAPVBN] = .VBN;
;  581         1567 2
;  582         1568 2 1
;  583         1569 1 END;                                        ! end of routine RETURN_FILE_NUM



                                         0BFC 00000 REMOVE_FILE_NUM:
                                                          .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R11            ; 1484
                   50        98   AA   D0 00002           MOVL    -104(BASE), R0                              ; 1539
                   56        58   B0   D0 00006           MOVL    @88(R0), FID_CACHE                          ;
                   5B        04   AC   D0 0000A           MOVL    COUNT, K                                    ; 1540
                   58             01   D0 0000E           MOVL    #1, J                                       ; 1541
         57   20 A648             01   C3 00011 1$:       SUBL3   #1, 32(FID_CACHE)[J], FILE_NUMBER           ; 1544
         50        57 00001000    8F   C7 00017           DIVL3   #4096, FILE_NUMBER, R0                      ; 1545
              08   AC             50   D1 0001F           CMPL    R0, VBN                                     ;
                                  27   12 00023           BNEQ    3$                                          ;
   59    57        0C             00   EF 00025           EXTZV   #0, #12, FILE_NUMBER, BITPOS                ; 1548
         00   0C   BC             59   E5 0002A           BBCC    BITPOS, @BUFFER, 2$                         ; 1549
                   50        02   A6   3C 0002F 2$:       MOVZWL  2(FID_CACHE), R0                            ; 1550
                   50             58   C2 00033           SUBL2   J, R0                                       ;
                   50             04   C4 00036           MULL2   #4, R0                                      ;
                          20 A648      DF 00039           PUSHAL  32(FID_CACHE)[J]                            ; 1552
                          24 A648      DF 0003D           PUSHAL  36(FID_CACHE)[J]                            ;
         9E        9E             50   28 00041           MOVC3   R0, @(SP)+, @(SP)+                          ;
                             02   A6   B7 00045           DECW    2(FID_CACHE)                                ; 1553
                                  58   D7 00048           DECL    J                                           ; 1554
                                  5B   D7 0004A           DECL    K                                           ; 1555
                                  58   D6 0004C 3$:       INCL    J                                           ; 1557
                                  5B   D5 0004E           TSTL    K                                           ; 1559
```

```
                                          08  13 00050          BEQL    4$                                     ;
       58      02  A6          10         00  ED 00052          CMPZV   #0, #16, 2(FID_CACHE), J              ;
                                          B7  1E 00058          BGEQU   1$                                     ;
                               50     98  AA  D0 0005A 4$:      MOVL    -104(BASE), R0                        ; 1565
   08  AC      3A  A0          08         00  ED 0005E          CMPZV   #0, #8, 58(R0), VBN                   ;
                                          05  1B 00065          BLEQU   5$                                     ;
                          3A   A0     08  AC  90 00067          MOVB    VBN, 58(R0)                           ; 1566
                               50         01  D0 0006C 5$:      MOVL    #1, R0                                ; 1569
                                              04 0006F          RET                                            ;

; Routine Size:  112 bytes,    Routine Base:  $CODE$ + 0280


;  584          1570  1
;  585          1571  1 END
;  586          1572  0 ELUDOM




;                                 PSECT SUMMARY
;
;       Name                          Bytes                       Attributes
;
;   $CODE$                               752  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)


;                            Library Statistics
;
;                                                 -------- Symbols --------       Pages        Processing
;       File                                      Total    Loaded   Percent       Mapped       Time
;
;   _$255$DUA28:[SYSLIB]LIB.L32;1                 18619        50         0       1000           00:01.8




;                                  COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:DELFIL/OBJ=OBJ$:DELFIL MSRC$:DELFIL/UPDATE=(ENH$:DELFIL)

; Size:           752 code + 0 data bytes
; Run Time:          00:49.2
; Elapsed Time:      01:43.4
; Lines/CPU Min:       1915
; Lexemes/CPU-Min: 58358
; Memory Used:  262 pages
; Compilation Complete
```

0169 AH-BT13A-SE
VAX/VMS V4.0

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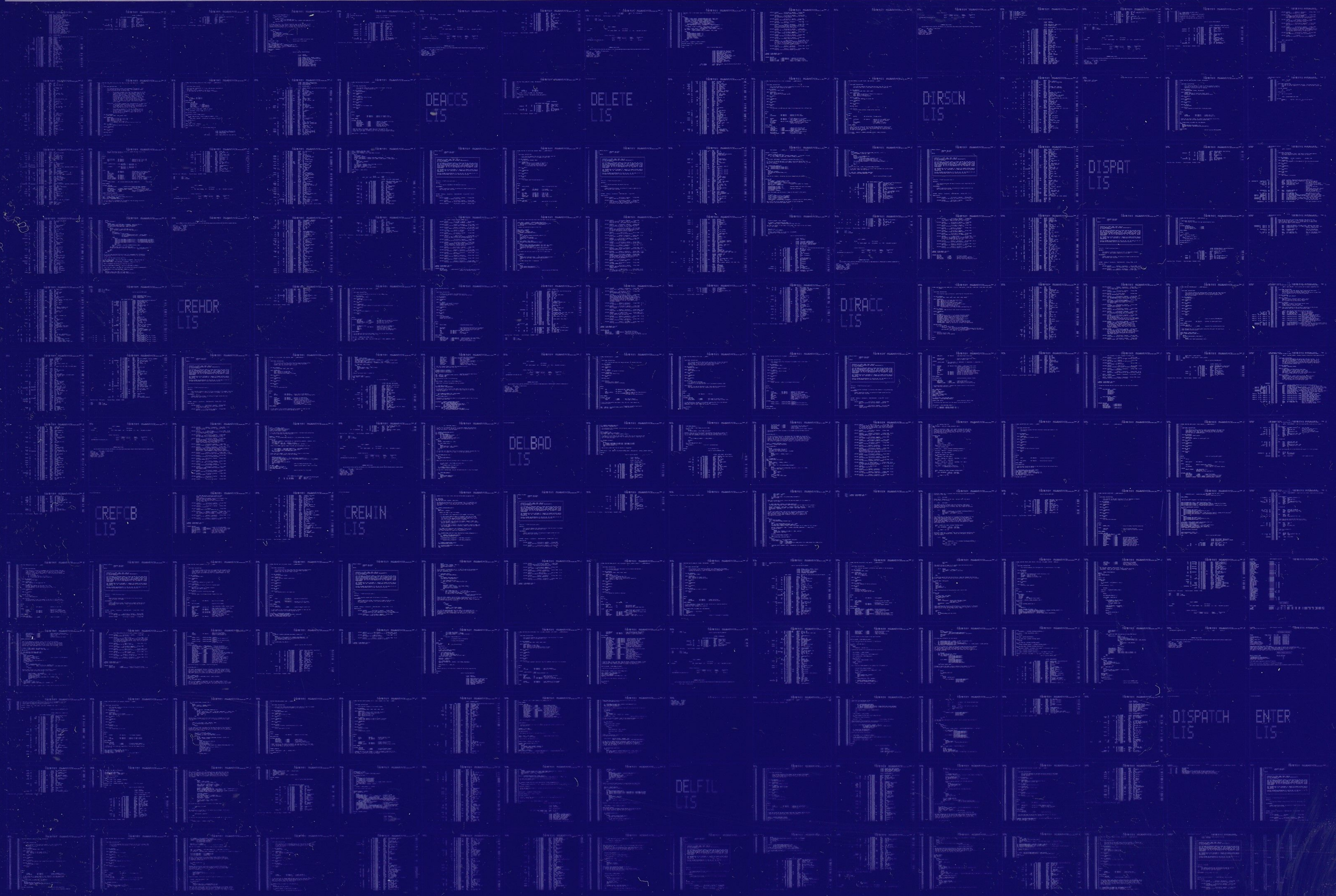

DEACCS
LIS

DELETE
LIS

DIRSCN
LIS

DISPAT
LIS

CREHDR
LIS

DIRACC
LIS

DELBAD
LIS

CREFCB
LIS

CREWIN
LIS

DISPATCH
LIS

ENTER
LIS

DELFIL
LIS