```
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
FFFFFFFF.FFF            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
----
IOC1
IO_C
IO_C
IO_D
IO_F
IO_S
KILL

KILL
KILL
LB_E
LB_D
LB_F
LB_H
LB_L
LOCA
LOCA
LOCK

LOCK
LOCK
LOCK
LOC_
LOC_
L_CC
L_CC
L_DA
L_DA
MAIN
MAKE
MAKE
MAKE
MAKE
MAKE
MAKE

MAKE
MAKc
MAP_
MAP_

MAP
MARK
MARK
MARK
MARK
MARK
```

M 8

```
**FILE**ID**CHKHD2




  CCCCCCCC  HH      HH  KK      KK  HH      HH  DDDDDDDD      222222
  CCCCCCCC  HH      HH  KK      KK  HH      HH  DDDDDDDD      222222
CC          HH      HH  KK      KK  HH      HH  DD      DD  22      22
CC          HH      HH  KK      KK  HH      HH  DD      DD  22      22
CC          HH      HH  KK    KK    HH      HH  DD      DD          22
CC          HH      HH  KK    KK    HH      HH  DD      DD          22
CC          HHHHHHHHHH  KKKKKK      HHHHHHHHHH  DD      DD        22
CC          HHHHHHHHHH  KKKKKK      HHHHHHHHHH  DD      DD        22
CC          HH      HH  KK    KK    HH      HH  DD      DD      22
CC          HH      HH  KK    KK    HH      HH  DD      DD      22
CC          HH      HH  KK      KK  HH      HH  DD      DD    22            ....
CC          HH      HH  KK      KK  HH      HH  DD      DD    22            ....
  CCCCCCCC  HH      HH  KK      KK  HH      HH  DDDDDDDD    2222222222      ....
  CCCCCCCC  HH      HH  KK      KK  HH      HH  DDDDDDDD    2222222222      ....


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
```

CH
VO

```
0 MODULE CHKHD2 (
0                 LANGUAGE (BLISS32),
0                 IDENT = 'V04-000'
0                 ) =
1 BEGIN
1
1 !
1 !****************************************************************************
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1 !*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                 *
1 !*                                                                          *
1 !*                                                                          *
1 !****************************************************************************
1
1 !++
1 !
1 ! FACILITY:  F11ACP Structure Level 2
1 !
1 ! ABSTRACT:
1 !
1 !       This routine verifies that the block given it is in fact a
1 !       file header. If file number and/or file seqence number are also
1 !       supplied, they are checked as well.
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:  13-Dec-1976  16:11
1 !
1 ! MODIFIED BY:
1 !
1 !       V03-005 ACG0408         Andrew C. Goldstein,    23-Mar-1984  11:31
1 !               Remove external reference to USER_STATUS
1 !
1 !       V03-004 CDS0003         Christian D. Saether    18-Jan-1984
1 !               ERR_STATUS macro declares USER_STATUS as an external.
```

```
1 !                     Explicitly declare it to avoid truncation errors.
1 !
1 !             V03-003 CDS0002         Christian D. Saether    17-Jan-1984
1 !                     Ooops.  Cannot use L_NORM linkage because this module
1 !                     gets pulled out into SYSINIT and MOUNTSHR images, at least.
1 !                     Remove test for EXTFID flag in CURRENT_VCB (we always use
1 !                     extended file ID format).
1 !
1 !             V03-002 CDS0001         Christian D. Saether    29-Dec-1983
1 !                     Use L_NORM linkage and BIND_COMMON macro.
1 !
1 !             V03-001 ACG0325         Andrew C. Goldstein,    3-Apr-1983  17:11
1 !                     Change use of header area length symbol
1 !
1 !             V02-003 ACG0156         Andrew C. Goldstein,    12-Mar-1980  15:21
1 !                     Fix header invalidation bug
1 !
1 !             B0102   ACG0146         Andrew C. Goldstein,    22-Feb-1980  21:40
1 !                     Change file sequence number check to no such file
1 !
1 !             B0101   acg0003         Andrew C. Goldstein,  10-Nov-1978  19:29
1 !             Add multi-volume support
1 !
1 !             B0100   ACG00001        Andrew C. Goldstein,  10-Oct-1978  19:59
1 !             Previous revision history moved to [F11B.SRC]F11B.REV
1 !**
1
1
1 LIBRARY 'SYS$LIBRARY:LIB.L32';
1 REQUIRE 'SRC$:FCPDEF.B32';
```

```
  1 GLOBAL ROUTINE CHECK_HEADER2 (HEADER, FILE_ID, HEADER_STATUS) =
  1
  1 !++
  1 !
  1 ! FUNCTIONAL DESCRIPTION:
  1 !
  1 !       This routine verifies that the block given it is in fact a
  1 !       file header. If file number and/or file seqence number are also
  1 !       supplied, they are checked as well.
  1 !
  1 ! CALLING SEQUENCE:
  1 !       CHECK_HEADER (ARG1, ARG2, ARG3)
  1 !
  1 ! INPUT PARAMETERS:
  1 !       ARG1: address of header image
  1 !       ARG2: address of file ID
  1 !
  1 ! IMPLICIT INPUTS:
  1 !       NONE
  1 !
  1 ! OUTPUT PARAMETERS:
  1 !       ARG3: (optional) address to store status return code
  1 !
  1 ! IMPLICIT OUTPUTS:
  1 !       USER_STATUS contains code if not valid
  1 !
  1 ! ROUTINE VALUE:
  1 !       0 if garbage
  1 !       1 if valid and correct file header
  1 !       2 if deleted file header
  1 !       4 if valid header but wrong sequence number
  1 !
  1 ! SIDE EFFECTS:
  1 !       NONE
  1 !
  1 !--
  1
  2 BEGIN
  2
  2 MAP
  2       HEADER          : REF BBLOCK,   ! file header arg
  2       FILE_ID         : REF BBLOCK,   ! file ID arg
  2       HEADER_STATUS   : REF VECTOR [,WORD]; ! status output arg
  2
  2 MACRO
M 2       EXIT    (STATUS_CODE, HEADER_STATE) =
M 2               BEGIN
M 2               STATUS = HEADER_STATE;
M 2               IF ACTUALCOUNT GEQU 3
M 2               THEN IF .HEADER_STATUS[0]
M 2                   THEN HEADER_STATUS[0] = STATUS_CODE;
M 2               RETURN .STATUS;
M 2               END
  2               %;
  2
  2 LOCAL
  2       STATUS,                         ! return value of routine
```

```
2          MAP_AREA        : REF BBLOCK;   ! pointer to header map area
2
2  EXTERNAL ROUTINE
2          CHECKSUM;                       ! compute file header checksum
2
2
2  ! First check the structure level.
2  !
2
2  IF .HEADER[FH2$B_STRUCLEV] NEQ 2
2  THEN EXIT (SS$_FILESTRUCT, 0);
2
2  ! Check the area offsets and the retrieval pointer use counts for
2  ! consistency.
2  !
2
2  IF .HEADER[FH2$B_IDOFFSET] LSSU $BYTEOFFSET (FH2$L_HIGHWATER)/2
2  OR .HEADER[FH2$B_MPOFFSET] LSSU .HEADER[FH2$B_IDOFFSET]
2  OR .HEADER[FH2$B_ACOFFSET] LSSU .HEADER[FH2$B_MPOFFSET]
2  OR .HEADER[FH2$B_RSOFFSET] LSSU .HEADER[FH2$B_ACOFFSET]
2  OR .HEADER[FH2$B_MAP_INUSE] GTRU .HEADER[FH2$B_ACOFFSET] - .HEADER[FH2$B_MPOFFSET]
2  THEN EXIT (SS$_BADFILEHDR, 0)
2
2  ! At this point, we have verified that the block at least once was a
2  ! valid file header.
2  !
2  ! Look at the file number in the header. If zero, this is a
2  ! deleted header.
2  !
2
2  IF .HEADER[FH2$W_FID_NUM] EQL 0
2  AND .HEADER[FH2$B_FID_NMX] EQL 0
2  THEN EXIT (SS$_NOSUCHFILE, 2);
2
2  ! Now compute the header checksum.
2  !
2
2  IF NOT CHECKSUM (.HEADER)
2  THEN EXIT (SS$_BADCHKSUM, 2);
2
2  ! Check file number and file sequence number.
2  !
2
2  IF .HEADER[FH2$W_FID_NUM] NEQ .FILE_ID[FID$W_NUM]
2  OR .HEADER[FH2$B_FID_NMX] NEQ .FILE_ID[FID$B_NMX]
2  THEN EXIT (SS$_FILENUMCHK, 2);
2
2  IF .HEADER[FH2$W_FID_SEQ] NEQ .FILE_ID[FID$W_SEQ]
2  THEN EXIT (SS$_NOSUCHFILE, 4);
2
2  ! Header is ok.
2  !
2
2  RETURN 1;
2
1  END;                                    ! end of routine CHECK_HEADER
```

```
                                                              .TITLE  CHKHD2
                                                              .IDENT  \V04-000\

                                                              .EXTRN  CHECKSUM

                                                              .PSECT  $CODE$,NOWRT,2

                                          000C 00000          .ENTRY  CHECK_HEADER2, Save R2,R3                   ; 1078
                          50       04   AC  D0 00002          MOVL    HEADER, R0                                  ; 1144
                          02       07   A0  91 00006          CMPB    7(R0), #2
                                        13  13 0000A          BEQL    1$
                                        52  D4 0000C          CLRL    STATUS                                      ; 1145
                          03            6C  91 0000E          CMPB    (AP), #3
                                        7F  1F 00011          BLSSU   5$
                          7B       0C   BC  E9 00013          BLBC    @HEADER_STATUS, 5$
                    0C    BC     08C0   8F  B0 00017          MOVW    #2240, @HEADER_STATUS
                                        73  11 0001D          BRB     5$
                          50       04   AC  D0 0001F 1$:      MOVL    HEADER, R0                                  ; 1151
                          26            60  91 00023          CMPB    (R0), #38
                                        27  1F 00026          BLSSU   2$
                          60       01   A0  91 00028          CMPB    1(R0), (R0)                                 ; 1152
                                        21  1F 0002C          BLSSU   2$
                    01    A0       02   A0  91 0002E          CMPB    2(R0), 1(R0)                                ; 1153
                                        1A  1F 00033          BLSSU   2$
                    02    A0       03   A0  91 00035          CMPB    3(R0), 2(R0)                                ; 1154
                                        13  1F 0003A          BLSSU   2$
                          51       02   A0  9A 0003C          MOVZBL  2(R0), R1                                   ; 1155
                          53       01   A0  9A 00040          MOVZBL  1(R0), R3
                          51            53  C2 00044          SUBL2   R3, R1
 51        3A    A0       08            00  ED 00047          CMPZV   #0, #8, 58(R0), R1
                                        13  1B 0004D          BLEQU   3$
                                        52  D4 0004F 2$:      CLRL    STATUS                                      ; 1156
                          03            6C  91 00051          CMPB    (AP), #3
                                        78  1F 00054          BLSSU   10$
                          76       0C   BC  E9 00056          BLBC    @HEADER_STATUS, 11$
                    0C    BC     0810   8F  B0 0005A          MOVW    #2064, @HEADER_STATUS
                                        78  11 00060          BRB     12$
                          50       04   AC  D0 00062 3$:      MOVL    HEADER, R0                                  ; 1165
                                   08   A0  B5 00066          TSTW    8(R0)
                                        0A  12 00069          BNEQ    4$
                                   0D   A0  95 0006B          TSTB    13(R0)                                      ; 1166
                                        05  12 0006E          BNEQ    4$
                          52            02  D0 00070          MOVL    #2, STATUS                                  ; 1167
                                        56  11 00073          BRB     9$
                                   04   AC  DD 00075 4$:      PUSHL   HEADER                                      ; 1172
                 0000G    CF            01  FB 00078          CALLS   #1, CHECKSUM
                          14            50  E8 0007D          BLBS    R0, 6$
                          52            02  D0 00080          MOVL    #2, STATUS                                  ; 1173
                          03            6C  91 00083          CMPB    (AP), #3
                                        52  1F 00086          BLSSU   12$
                          4E       0C   BC  E9 00088          BLBC    @HEADER_STATUS, 12$
                    0C    BC     0808   8F  B0 0008C          MOVW    #2056, @HEADER_STATUS
                                        46  11 00092 5$:      BRB     12$
                          50       04   AC  7D 00094 6$:      MOVQ    HEADER, R0                                  ; 1178
                          61       08   A0  B1 00098          CMPW    8(R0), (R1)
                                        07  12 0009C          BNEQ    7$
```

```
                                  05   A1       0D   A0  91 0009E         CMPB     13(R0), 5(R1)                               ; 1179
                                                     14  13 000A3         BEQL     8$                                          ;
                                       52            02  D0 000A5 7$:     MOVL     #2, STATUS                                  ; 1180
                                       03            6C  91 000A8         CMPB     (AP), #3                                    ;
                                                     2C  1F 000AB         BLSSU    12$                                         ;
                                       29       0C   BC  E9 000AD         BLBC     @HEADER_STATUS, 12$                         ;
                                  0C   BC     08B0   8F  B0 000B1         MOVW     #2224, @HEADER_STATUS                       ;
                                                     21  11 000B7         BRB      12$                                         ;
                                       51       04   AC  D0 000B9 8$:     MOVL     HEADER, R1                                  ; 1182
                                       50       08   AC  D0 000BD         MOVL     FILE_ID, R0                                 ;
                                  02   A0       0A   A1  B1 000C1         CMPW     10(RT), 2(R0)                               ;
                                                     16  13 000C6         BEQL     13$                                         ;
                                       52            04  D0 000C8         MOVL     #4, STATUS                                  ; 1183
                                       03            6C  91 000CB 9$:     CMPB     (AP), #3                                    ;
                                                     0A  1F 000CE 10$:    BLSSU    12$                                         ;
                                       06       0C   BC  E9 000D0 11$:    BLBC     @HEADER_STATUS, 12$                         ;
                                  0C   BC     0910   8F  B0 000D4         MOVW     #2320, @HEADER_STATUS                       ;
                                       50            52  D0 000DA 12$:    MOVL     STATUS, R0                                  ;
                                                         04 000DD         RET                                                  ;
                                       50            01  D0 000DE 13$:    MOVL     #1, R0                                      ; 1188
                                                         04 000E1         RET                                                  ; 1190

; Routine Size:  226 bytes,    Routine Base:  $CODE$ + 0000


;  202          1191   1
;  203          1192   1 END
;  204          1193   0 ELUDOM




;                                      PSECT SUMMARY
;
;       Name                         Bytes                        Attributes
;
;  $CODE$                                 226  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        36         0        1000          00:02.0




;                                       COMMAND QUALIFIERS
;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:CHKHD2/OBJ=OBJ$:CHKHD2 MSRC$:CHKHD2/UPDATE=(ENH$:CHKHD2)

; Size:          226 code + 0 data bytes
; Run Time:         00:11.6
; Elapsed Time:     00:22.4
; Lines/CPU Min:     6197
; Lexemes/CPU-Min: 26197
; Memory Used:  168 pages
; Compilation Complete
```

0168 AH-BT13A-SE
VAX/VMS V4.0

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