

STAT und der DPB

STAT DEV: liefert Informationen über den Disk Parameter Block.

```
A>stat dsk:
  A: Drive Characteristics
 6400: 128 Byte Record Capacity
  800: Kilobyte Drive Capacity
  192: 32 Byte Directory Entries
  192: Checked Directory Entries
 128: Records/ Extent
  16: Records/ Block
  40: Sectors/ Track
   0: Reserved Tracks
```

Der zugehörige Disk Parameter Block DPB enthält die folgenden Werte. Daraus berechnet STAT die Werte für records per block und bytes per block und daraus die Ausgaben.

```
dpb:   dw    40      ;SPT sectors per track
      db     4      ;BSF block shift factor
      db    15      ;BLM block mask
      db     0      ;EXM null mask
      dw   399      ;DSM disk size-1
      dw   191      ;DRM directory max
      db  0E0H      ;AL0 alloc 0
      db     0      ;All alloc 1
      dw   48      ;CKS check size
      dw     0      ;OFS track offset

rpb := 1<<BSF = 2^BSF;          /* records/block */    = 2^4 = 16
bpb := 1<<BSF * 128 = 2^BSF * 128; /* bytes per block */  = 2^4*128 =
2048

Drive Characteristics      := Laufwerk          = A
128 Byte Record Capacity  := (DSM+1) * rpb    = (399+1) * 16 = 6400
Kilobyte Drive Capacity   := (DSM+1) * bpb / 1024 = (399+1) * 2048 / 1024
= 800
32 Byte Directory Entries := DRM+1            = 191+1 = 192
Checked Directory Entries := CKS<<2 = CKS*4     = 48 * 4 = 192
Records/ Extent           := (EXM+1) * 128    = (0+1) * 128 = 128
Records/ Block            := rpb              = 16
Sectors/ Track            := SPT              = 40
Reserved Tracks           := OFS              = 0
```

Der originale Codeauszug von STAT, geschrieben in PL/M, ist relativ leicht zu verstehen. Lediglich die Berechnung der Gesamtkapazität ist etwas komplexer gelöst; PLM arbeitet nur mit 16 Bit. Deshalb muss die Multiplikation über diesen Zahlenbereich hinaus anders gelöst werden.

```
/* function call 32 returns the address of the disk parameter
block for the currently selected disk, which consists of:
    scptrk      (2 by) number of sectors per track
    blkshf      (1 by) log2 of blocksize (2**blkshf=blksize)
    blkmsk      (1 by) 2**blkshf-1
    extmsk      (1 by) logical/physical extents
    maxall      (2 by) max alloc number
    dirmax      (2 by) size of directory-1
    dirblk      (2 by) reservation bits for directory
    chksiz      (2 by) size of checksum vector
    offset      (2 by) offset for operating system
*/

    dpb based dpba structure
    (spt address, bls byte, bms byte, exm byte, mxa address,
    dmx address, dbl address, cks address, ofs address),
    scptrk literally 'dpb.spt',
    blkshf literally 'dpb.bls',
    blkmsk literally 'dpb.bms',
    extmsk literally 'dpb.exm',
    maxall literally 'dpb.mxa',
    dirmax literally 'dpb.dmx',
    dirblk literally 'dpb.dbl',
    chksiz literally 'dpb.cks',
    offset literally 'dpb.ofs';

declare bpb address; /* bytes per block */

set$bpb: procedure;
    call set$dpb; /* disk parameters set */
    bpb = shl(double(1),blkshf) * sectorlen;
end set$bpb;

getalloca: procedure address;
    /* get base address of alloc vector */
    return mon3(27,0);
end getalloca;

add$block: procedure(ak,ab);
    declare (ak, ab) address;
    /* add one block to the kilobyte accumulator */
    declare kaccum based ak address; /* kilobyte accum */
    declare baccum based ab address; /* byte accum */
    baccum = baccum + bpb;
    do while baccum >= 1024;
        baccum = baccum - 1024;
        kaccum = kaccum + 1;
    end;
end add$block;

count: procedure(mode) address;
```

```

declare mode byte; /* true if counting 0's */
/* count kb remaining, kaccum set upon exit */
declare
    ka address, /* kb accumulator */
    ba address, /* byte accumulator */
    i address, /* local index */
    bit byte; /* always 1 if mode = false */
ka, ba = 0;
bit = 0;
do i = 0 to maxall;
    if mode then bit = getalloc(i);
    if not bit then call add$block(.ka,.ba);
end;
return ka;
end count;

```

```

drivestatus: procedure;
declare
    rpb address,
    rpd address;
pv: procedure(v);
declare v address;
call crlf;
call pdecimal(v,10000);
call printchar(':');
call printb;
end pv;
/* print the characteristics of the currently selected drive */
call print(.( ' ',0));
call printchar(cselect+'A');
call printchar(':');
call printx(.( ' Drive Characteristics',0));
rpb = shl(double(1),blkshf); /* records/block=2**blkshf */
if (rpd := (maxall+1) * rpb) = 0 and (rpb <> 0) then
    call print(.( '65536: ',0)); else
    call pv(rpd);
    call printx(.( '128 Byte Record Capacity',0));
call pv(count(false)); /* (maxall+1)*bpb/1024 */
    call printx(.( 'Kilobyte Drive Capacity',0));
call pv(dirmax+1);
    call printx(.( '32 Byte Directory Entries',0));
call pv(shl(chksiz,2));
    call printx(.( 'Checked Directory Entries',0));
call pv((extmsk+1) * 128);
    call printx(.( 'Records/ Extent',0));
call pv(rpb);
    call printx(.( 'Records/ Block',0));
call pv(scptrk);
    call printx(.( 'Sectors/ Track',0));
call pv(offset);
    call printx(.( 'Reserved Tracks',0));

```

```
call crlf;  
end drivestatus;
```

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