Test data

I use userProgram.c to test my EXTENT file allocation and system call lseek()

- First, userProgram create a extent file name “file2”, use flag O_EXTENT
- Create a struct test, which contain int number[128], the size of this struct test is 512 bytes, that is size of one block
- Write 50 times of test struct to EXTENT file, so totally we write 50 data blocks to the file
- Theoretically each extent should has length of 256 (2^8), because this need too much writing to file to demonstrate the creating of new ip->addrs[] due to next block unavailable of reach the max size=256, I CHANGE THE MAX LENGTH=16 FOR DEMONSTRATION

bmap() in fs.c

```
if(((bp->data[next/8] & m) != 0)|(length==16)){
 brelse(bp);
 start= balloc(ip->dev);
 length=1;
```

- userProgram call fstat() and printst() to get the file megadata and print to screen
- userProgram call system call lseek(fd,100) to set the off of the file2 to 100

userProgram.c

```
struct test {
    int number[128];
};

void printst(struct stat *st){
        printf(1, "st->type=%p \n",st->type);
        printf(1, "st->dev=%p \n",st->dev);
        printf(1, "st->ino=%p \n",st->ino);
        printf(1, "st->nlink=%p \n",st->nlink);
        printf(1, "st->size=%p \n",st->size);
         for(int i=0;i<13;i++){
                printf(1, "st->start[%d]=%p st->length[%d]=%p\n",i,st->start[i],i,st->length[i]);
         }
}
int main(void)
{
    int fd;
    struct test t;
    t.number[0] = 1;
```

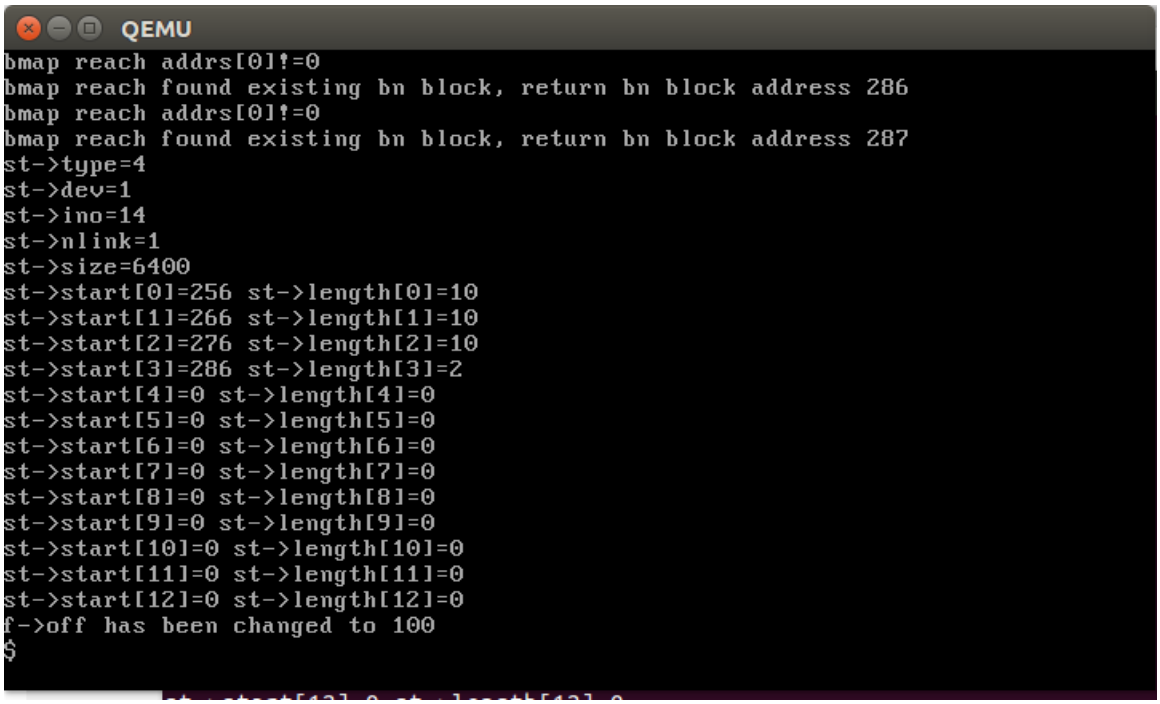
```
    fd = open("file2",O_CREATE| O_RDWR|O_EXTENT);
    if(fd >= 0) {
        printf(1, "ok: create file succeed\n");
    } else {
        printf(1, "error: create file failed\n");
        exit();
    }

  for(int i=0;i<50;i++){
    if(write(fd, &t, 512) != 512){
        printf(1, "error: write to file failed\n");
        exit();
    }
  }
  struct stat st;
  fstat(fd,&st);
  printst(&st);
  lseek(fd,100);
  close(fd);
   exit()
}
```

Test result

As shown in below picture

Totally allocate 50 data blocks

- 1st continuous blocks starts at 0x256, length 0x10(16 blocks, the max length of the extent)
- 2nd continuous blocks starts at 0x266, length 0x10
- 3rd continuous blocks starts at 0x276, length 0x10
- 4th continuous blocks starts at 0x286, length 0x2
- I code inside the lseek() that printf the changed f->off, now it is 100


QEMU
bmap reach addrs[0]!=0
bmap reach found existing bn block, return bn block address 286
bmap reach addrs[0]!=0
bmap reach found existing bn block, return bn block address 287
st->type=4
st->dev=1
st->ino=14
st->nlink=1
st->size=6400
st->start[0]=256 st->length[0]=10
st->start[1]=266 st->length[1]=10
st->start[2]=276 st->length[2]=10
st->start[3]=286 st->length[3]=2
st->start[4]=0 st->length[4]=0
st->start[5]=0 st->length[5]=0
st->start[6]=0 st->length[6]=0
st->start[7]=0 st->length[7]=0
st->start[8]=0 st->length[8]=0
st->start[9]=0 st->length[9]=0
st->start[10]=0 st->length[10]=0
st->start[11]=0 st->length[11]=0
st->start[12]=0 st->length[12]=0
f->off has been changed to 100
$