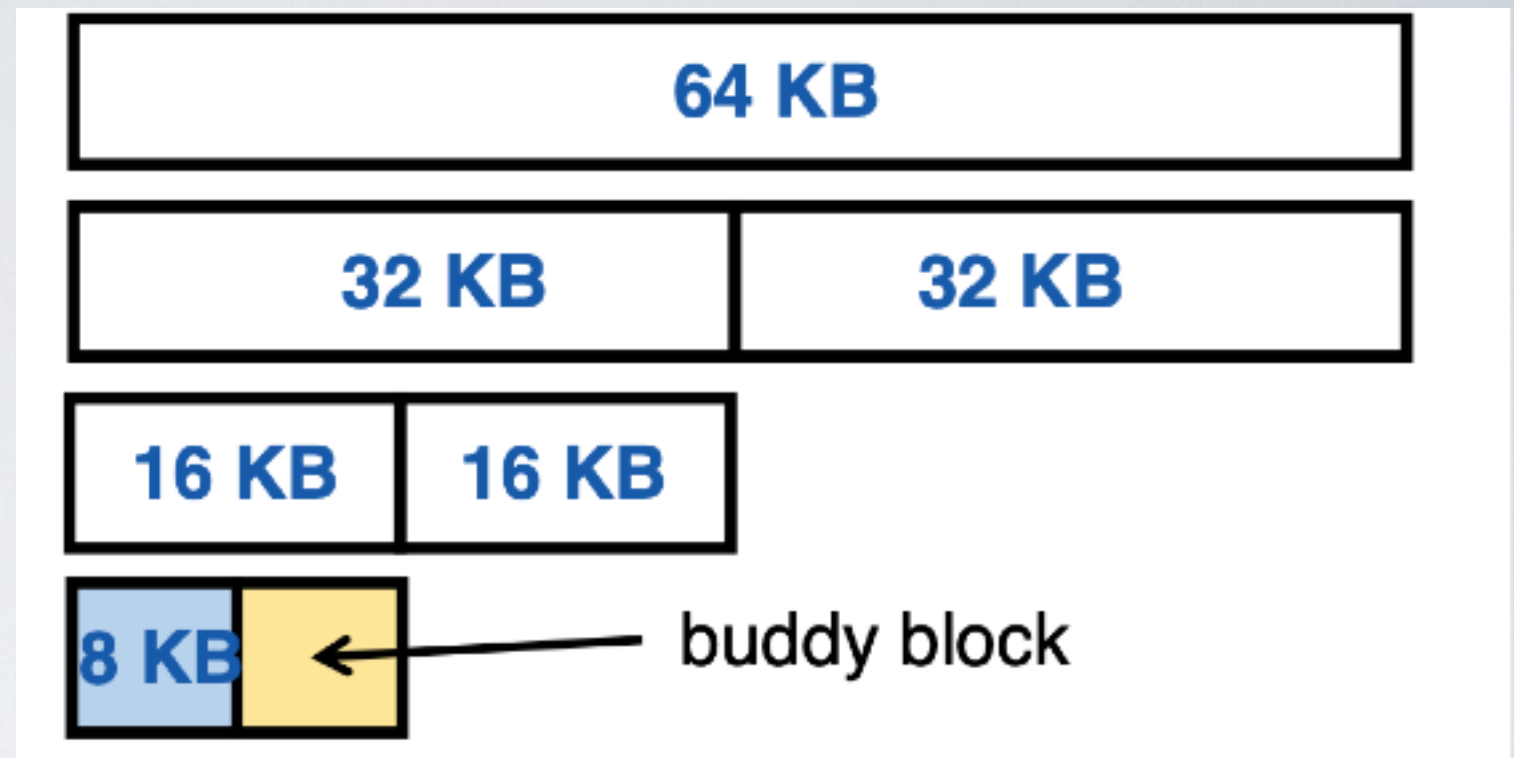


Buddy Allocation

➡ Allocate blocks in 2^k



Data structure

Maintain n free lists of blocks of size $2^0, 2^1, \dots, 2^n$

Code

- recursively divide larger blocks until reach suitable block
 - insert buddy blocks into free lists
 - upon free, recursively coalesce block with buddy if buddy free
- ➡ the addresses of the buddy pair only differ by one bit

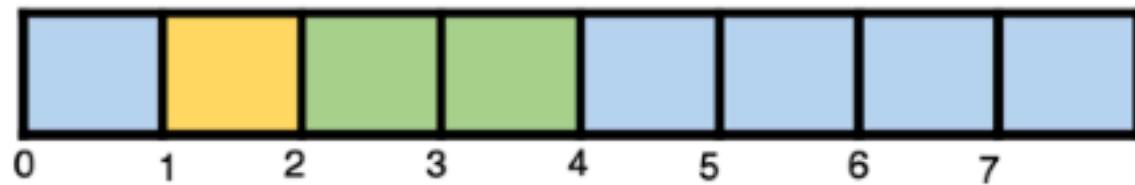
Example



`p1 = alloc(20)`



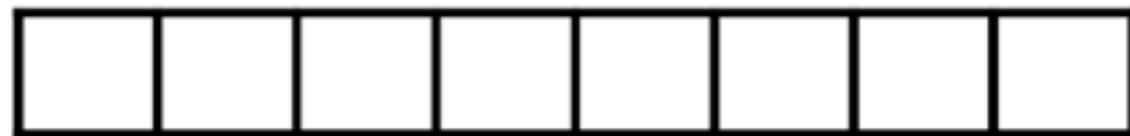
`p2 = alloc(22)`



`free(p1)`



`free(p2)`



`freelist[3] = {0}`

Note: 2³

`freelist[0] = {1}`, `freelist[1] = {2}`, `freelist[2] = {4}`

`freelist[0] = {1}`, `freelist[1] = {2}`

`freelist[2] = {0}`

`freelist[3] = {0}`