Buddy System – Memory allocation technique

Prerequisite – Partition Allocation Methods

Static partition schemes su ed number of active processes and the usage of space may also not be optimal. The **buddy system** is a memory allocation and management algorithm that manages memory in **power of two increments**. Assume the memory size is 2^U, suppose a size of S is required

- **If $2^{U-1}<S<=2^U$:** Allocate the whole block
- **Else:** Recursively divide the block equally and test the condition at each time, when it satisfies, allocate the block and get out the loop.

System also keep the record of all the unallocated blocks each and can merge these different size blocks to make one big chunk.

Advantage –

- Easy to implement a buddy system
- Allocates block of correct size
- It is easy to merge adjacent holes
- Fast to allocate memory and de-allocating memory

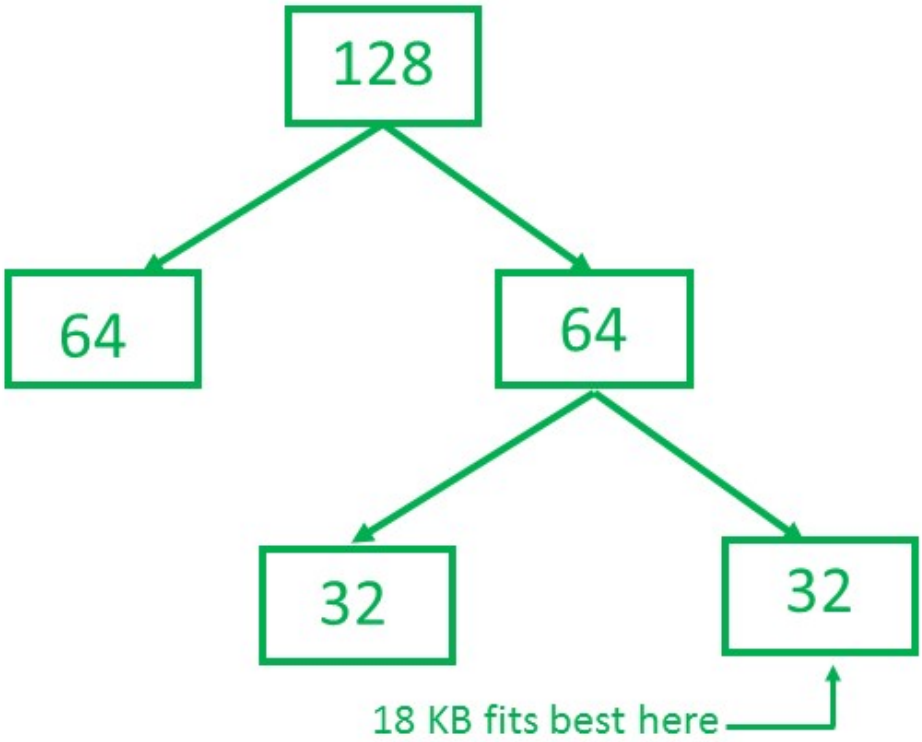
Disadvantage –

- It requires all allocation unit to be powers of two
- It leads to internal fragmentation

Example –

Consider a system having buddy system with physical address space 128 KB.Calculate the size of partition for 18 KB process.

Solution –



So, size of partition for 18 KB process = 32 KB. It divides by 2, till possible to get minimum block to fit 18 KB.

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