2-Level Paging | Operating System – M05 P13

This is a multipart blog article series, and in this series I am going to explain you the concepts of operating system. This article series is divided into multiple modules and this is the fifth module which consists of 26 articles.

In this article we will see what 2 level paging is, and with the help of a question we will try to understand the need of 2 level paging.

**2-level paging**

* Suppose the size of page table is greater than that of frame table, so it cannot fit in frame that’s why we use multiple page tables.
* Because it divides the page table in smaller parts which can get fit in frame table.

Let’s see an example to get better understanding of the topic.

**Question:** Physical address space = 256 MB = 228, logical address space = 4 GB, frame size = 4 KB = 212, page table entry = 2 B. Solve and find that whether outer page table is required or not.

**Answer:** As we know that “frame number = physical address space – frame size”

Frame number = 228 – 212 = 216

Size of page table = 210 x 2 = 2 MB

Size of frame and page is not equal. So, we have to divide page into smaller parts.

Therefore,

2 MB/ 4 KB = 221/212 = 29

Now we will make another page table and it will be known as outer page table, which will have 29 entries.

Total size of outer page table = 29 x 2 B = 1 KB

So this was all about 2 level paging, I tries to explain you the concept with the help of a question. Hope you liked it and learned something new from it.

If you have any doubt, question, quires related to this article or just want to share something with me, than please feel free to contact me.