

Flat memory model or **linear memory model** refers to a **memory** addressing paradigm in which "**memory** appears to the program as a single contiguous address space." The CPU can directly (and linearly) address all of the available **memory** locations without having to resort to any sort of **memory** segmentation or paging schemes.

Linear Memory Model

A **linear memory model**, also known as the **flat memory model** refers to a memory addressing technique in which memory is organized in a single contiguous address space. This means that the processing unit can access these memory locations directly as well as linearly.

To better understand a linear memory model, we should understand two basic components: **address** and **data**. Address is a hexadecimal number which is used to denote the exact place of a memory chunk. Data is the value stored in that memory. In a linear memory model, the entire memory space is linear, sequential and contiguous. The address ranges from 0 to $MaxByte - 1$, where *MaxBytes* is the maximum limit of memory. Each program uses one 32-bit linear memory space, that means $2^{32} = 4GB$ of memory can be addressed using this memory model. The operating system then translates these linear addresses to physical addresses using paging schemes.