

Difference between CPU and Processor

A processor is something that contains logic gate circuits, and performs data manipulation. Modern computers have a whole bunch of them, including the CPU. Usual common usage of the term processor refers to the CPU, as it is the central processor, but technically, the north bridge, south bridge, network controller, memory controller, GPU, FPUs, DSPs and more are all processors in their own right.

The CPU commonly contains three sections, the CU (Control Unit), the generic ALU (Arithmetic and Logic Unit), and Cache. The Control Unit handles the management of the CPU's work such as fetching data from memory and keeping instructions organized; the ALU handles all sorts of data manipulation - depending on the kind of work the programmer wants it to do, it can be made to do lots of different things - and cache which acts as a quick-access storage facility for data that's going to be used a lot.

Non-CPU processors usually have a simpler design, with very simple CUs, a small amount of logical circuits very specific to a single task which are not programmable (and therefore not "generic"), and often no cache.

GPU (graphics processing units) started out pretty simple, designed to remove the burden of processing 3d graphics from the CPU, allowing it to handle sound, physics, and game logic. There were GPUs designed for 2d graphics and for content creation like movie rendering, but those were quickly merged into the generic GPUs we have today. As GPUs became more powerful, they also became more flexible, with programmable logic gates, more complex CUs, and huge amounts of cache.

In the past few years, GPUs have become nearly as complex as the CPUs they assist, and some people have started doing all sorts of data manipulation directly on the GPUs themselves. Array and stream processing, protein folding processing; anything where you do one operation over and over on lots of data; or SIMD (single instruction, multiple data). It is likely that in the next few years, GPUs will disappear altogether; replaced by another generic core in the CPU.

Bottom Line: CPU is a term that means it is central processing unit, so it is more of an abstract and logical term. So, CPU can *comprise of million processors* spread across accomplishing different tasks, working like organs for the whole body which may or may not have a physical boundary.