**Multi-Core CPUs**

Originally, CPUs had a single core. That meant the physical CPU had a single central processing unit on it. To increase performance, manufacturers add additional “cores,” or central processing units. A dual-core CPU has two central processing units, so it appears to the operating system as two CPUs. A different process can be using each core at the same time. This speeds up your system, because your computer can do multiple things at once.

Unlike hyper-threading, there are no tricks here — a dual-core CPU literally has two central processing units on the CPU chip. A quad-core CPU has four central processing units, an octa-core CPU has eight central processing units, and so on.

This helps dramatically improve performance while keeping the physical CPU unit small so it fits in a single socket. There only needs to be a single CPU socket with a single CPU unit inserted into it — not four different CPU sockets with four different CPUs, each needing their own power, cooling, and other hardware. There’s less latency because the cores can communicate more quickly, as they’re all on the same chip.

Windows 8’s task manager shows this fairly well — here we have a single processor with four cores and hyper-threading, so it appears to have eight logical CPUs.