

Example of cores on computer systems case study

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Multiprocessor systems are systems in which there are multiple physical processors present on the computer system (Schauer, 2008). Multi-core processors, on the other hand refer to the presence of more than one virtual core on only one physical processor. For instance, if two virtual cores are present, this is called a duo-core single processor. Whereas a two-physical processor would rightly be referred to as a duo-processor system (Schauer, 2008).

Power efficiency, multi-core processors are more power efficient than single core processors. A dual core consumes less power when compared to two separate processors. This is because there is decreased need for power to drive signals that are far away from the chip (Schauer, 2008).

Also, in terms of cost benefit analysis, multi-core processors lead to the production of cheaper processors when compared to single core processors (NI, 2011), (Ramanathan, 2006). When the cost of single chip processors are compared to that of multi-core processors, one will realize that the total manufacturing cost of the single-core processors are higher than that of multi-core processors, which tend to even be smaller in size than the single-chip processors (Ramanathan, 2006).

Parallelized business applications would no doubt increase the speed at which these applications perform functions. This would lead to improved efficiency. This attribute is desirable to the end user who wants improved performance in the application. However, the downside to parallel computing is that it requires more hardware. Also, parallel computing definitely requires more power to work. When this is compared to the concept of multi-core computing which invariably leads to production of processors that run on low

power, one will realize that parallel computing may not give the required quantum fold increase in performance that is theoretically possible.

Hyperthreading is the process by which multiple threads are simultaneously implemented. This leads to improvement in parallelization of processes computed by the processor (Marr et al, 2012). Hyperthreading allows multi-core processors to execute multiple streams of instructions simultaneously. This would lead to faster response time on tasks run on multi-core computers. It is worthy of note that hyperthreading works well when multiple applications that have different nature are run (Marr et al, 2012). This would lead to multiple threads being generated on the different cores thereby leading to a faster reaction time for the computer, and also invariably lead to overall reduction in the time spent by the processor to respond. However, there will be no reduction in the reaction time if only one stream of process is run on the multi-core processor; the other cores would just become redundant during the process (Prssach, 2005). Therefore, hyperthreading does not always lead to an increase in efficiency of the application. It only works in certain instances (Prssach, 2005).

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