

Cpu and ram essay examples

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Number:

CPU and RAM

There are many components that make up a computer system. The core unit is central processing unit. This is the most important component as it is tasked overall processing of information in all the other components. Another important component is the memory. A computer with a good memory but low memory will not be that powerful. These two computer components have undergone a long process up to where they are. They are becoming more powerful and smaller. This paper will look at the technologies behind these two computer components.

CPU components

Intel developed a series of CPU based on the mobile technology presently realized. The Intel core i3 offered the least power as well as least expensive value while the core i7 series is the flagship. In this case, there are two architectures powering different core processors. In the old generation processors, the designation is based on three digital numbers like 330 or 720 while the newer generation of architecture offer a designation based on four model numbers like 2410 or 2630. The second generation offer high performances in the computers. They also allow graphics integration in the CPU architecture. The architecture can handle gaming in 3D as well as advanced video playing (Youngsoo, 2009).

Pentium processors

The Pentium processors are a product of Intel Company. The name is a Greek word meaning five; this means that the processors are of fifth

generation. The first Pentium processor was produced in 1993 and has been called original Pentium. The CPUs that were built from these were supposed to follow the naming convention of 486 so that they follow the initial naming convention of 286.

After the original Pentium processor came the Pentium pro which was silently called Pentium 6? It was more developed and advanced than original Pentium. This was the first CPU that radically changed the way instructions were executed. They changed instructions into micro-instructions similar to RISC and then executing them on highly enhanced internal core. The Pentium pro has a higher performance base of more than 50% and has the same clock speed. Other features that are added in this generation are that it has super pipelining where the processor increases the processing steps to 14 right from 5.

AMD Athlon/Phenom

Athlon/Phenom was the flagship for mobile products in AMD. It is devoid of power efficiency and performance that is seen in Intel core processors. Due to this reason, AMD's Athlon and Phenom are not competitive in the market compared to the products by Intel. Another disadvantage with this processor with regard to market choice is its price value. If the price of the same remains high, then Core i3 can achieve Benchmark score that are considerably higher than that of Athlon or Phenom (Erick, 2008).

AMD Fusion

AMD fusion is processors that are similar to Intel's Atom. It is targeted towards smaller computing devices like notebooks and other ultra portables.

They offer faster performance. However, based on clock cycle, however, they have the same clock speed just like Atom CPUs (Tim et al., 2010). The CPU architecture of this model has Radon integrated graphics embedded in it. Though they cannot support 3-D gaming and other elements they, however, can handle most video and graphic media well giving it an upper hand to Intel's' Atom processor (Tim et al., 2010).

AMD Turon

AMD turion offer good performance in the market today. The architecture is based on performance capitalization; however, the same brings a limitation in the model since it uses a lot of power. This is the biggest limitation of ADM turon. It is cheaper on the other hand compared to Intel counterparts.

As of now the importance of 64-bit computing is geared by its uses that need massive amounts of physical and virtual memory. Intel is coming up with 64-bit processor for servers and personal computers. The reason behind the developing of this technology is because of the rising demand for better performance by the developers and home users. AMD64 is the main term used for the 64-bit architecture. The Intel's new 64-bit architecture is specifically termed as IA-64. Intel has managed to develop two server processors which include Itanium and Itanium 2 (Intel) (Vinodh, & Bruce, 2001).

Mobile processor

These are from the Intel Company. The families include Core i7 Mobile, Core i3 Mobile, and Core 2 Mobile. Others include Pentium Mobile, and Celeron

Mobile. They are used for laptops. They are designed so that they are able to process and multitask given a short battery life.

Memory

Static random access memory makes use of many transistors. They are typically four to six transistors whereby each transistor has a capacitor in each and every cell. The main use of this is for cache purposes.

Dynamic random access memory is memory which has memory cells with paired transistor and capacity which will need constant refreshing.

Synchronous dynamic random access memory makes use of burst mode which has been introduced to increase performance. This is achieved by staying on the row which has the bit which has been requested and then moving rapidly through the columns and making sure that it reads as it goes along. The main reason for this is that most of the data that the CPU will need are in sequence. This RAM type is common in most desktops today.

Rambus dynamic random access memory is a complete diversion from the DRAM technology and architecture. It was designed by Rambus and makes use of Rambus in-line memory module (RIMM) in which has similar specifications and in pin and configuration with DIMM. The difference with the other RAM is that it makes use of special data bus that is called Rambus channel.

Double Data Rate RAM 2 (DDR2) and Double Data Rate RAM 3 (DDR3) are new technology which was introduced where the data transfer rate doubled per cycle. The DDR2 gives the user 4 data transfers per cycle while the DDR3 makes an increase to this number to 8. If there is a base cycle of 100 MHz,

DDR RAM will give a 1600 MB/s of bandwidth where in this DDR2 will provide 3200 MB/s while DDR3 will provide 6400 MB/s.

References

Vinodh, C., & Bruce J. (2001). Concurrency, latency, or system overhead: Which has the largest impact on uniprocessor dram-system performance? Proceedings of the 28th Annual International Symposium on Computer Architecture, pp. 62-71.

Youngsoo, C., Allan, K., Luke, G., & Tin-Fook, N. (2001). The impact of if-conversion and branch prediction on program execution on the Intel titanium processor, Proceedings of the 34th Annual International Symposium on Micro-architecture, pp. 182-191.