Starting with the great name of Allah

**ASSIGNMENT:**

**Assignment Topic**: Comparison b/w processors

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**What does Processor mean?**

A processor is an integrated electronic circuit that performs the calculations that run a computer. A processor performs arithmetical, logical, input/output (I/O) and other basic instructions that are passed from an operating system (OS). Most other processes are dependent on the operations of a processor.

**Pentium Processor:**

Pentium is a brand used for a series of x86 architecture-compatible microprocessors produced by Intel since 1993. Pentium processors are considered entry-level products that Intel rates as "two stars", meaning that they are above the low-end Atom and Celeron series, but below the faster Intel Core lineup, and workstation Xeon series.

The name Pentium is originally derived from the Greek word pente, meaning "five", a reference to the prior numeric naming convention of Intel's 80x86 processors (8086–80486), with the Latin ending -ium since the processor would otherwise have been named 80586 using that convention.

**Dual Core:**

A dual-core processor is a CPU with two processors or "execution cores" in the same integrated circuit. Each processor has its own cache and controller, which enables it to function as efficiently as a single processor. However, because the two processors are linked together, they can perform operations up to twice as fast as a single processor can.

**Core 2 Duo:**

The Intel Core 2 Duo (also known as Core2 Duo) processor is a 64 bit dual core processor. This means two processor cores work inside a Core 2 Duo in parallel.

**Comparison table between Dual Core, Core 2 Duo & Pentium Processors:**

|  |  |  |  |
| --- | --- | --- | --- |
| **COMPARISON** | **PENTIUM** | **DUAL CORE** | **CORE2 DUO** |
| **Basic** | Pentium is a brand used for a series of x86 architecture-compatible microprocessors produced by Intel since 1993. | A dual-core processor is a CPU with two processors or "execution cores" in the same integrated circuit. | The Intel Core 2 Duo (also known as Core2 Duo) processor is a 64 bit dual core processor. |
| **Performance** | Pentium processors were distinguished from the faster, higher-end i-series processors by lower clock rates and disabling some features, such as hyper-threading, virtualization. | In comparison with previous processors, Dual core is better than all. | Core 2 duo has better performance than Dual core as it has better overclock ability than Dual core. |
| **Overclock** | In Pentium processor we can overclock it up to 3.8 GHz. | In this processor we can overclock the CPU up to 3.12GHz (approximate value). | In Core 2 Duo processor we can overclock it up to 4.0GHz. |
| **Cost** | It costs up to 10127 according to speed and other specification in current market. | It costs up to 4899 (2.8GHz) according to speed and other specification in current market. | Core 2 Duo costs up to 1396 (4.0GHz) according to speed and other specification in current market. |
| **Cache Memory** | In Pentium processor we have 512 KB of L2 cache memory. | In Dual core processor we have 3 MB of L2 cache memory. | In Core 2 Duo processor we have 6 MB of L2 cache memory. |
| **Execution** | Hyper threading is supported in the Pentium processors. | It has two complete execution cores. | Due to high clock speed/overclock ability, it can execute multiple task parallel. |
| **Example** | Intel G620 Pentium. | Intel G530 Dual Core. | Intel Core 2 duo T8100. |

|  |  |  |  |
| --- | --- | --- | --- |
| **COMPARISON** | **INTEL CORE i3** | **INTEL CORE I5** | **INTEL CORE I7** |
| **Number of Cores** | 2 | 4 | 4 |
| **Performance** | It provides adequate performance for basic tasks | It provides good performance for most task | It provides great performance for the most demanding of tasks. |
| **Clock Speed Range(Several Models)** | 3.4GHz – 4.2GHz | 2.4GHz – 3.8GHz | 2.9GHz – 4.2GHz |
| **Thread** | 4 threads | 4 threads | 8 threads |
| **Turbo Mode** | It has no turbo mode. | Turbo mode (turn of if not used) | Turbo mode (turn of if not used) |
| **Cache Memory** | 3 – 4MB | 4 – 6MB | 8MB |
| **Hyper-Threading** | Yes | No | Yes |
| **Graphics** | Low | Mid-range | Expensive |
| **Price** | Low | Mid-range | Best |