9.10 INTEL CORE PROCESSORS

Intel Core is a brand name used for various mid-range to high-end consumer and business microprocessors made by Intel. In general, processors sold as Core are more powerful variants of the same processors marketed as Celeron and Pentium. Similarly, more capable versions of Core processors are also sold as Xeon processors for the server and workstation.

The current Core processors includes the Intel Core i7, Intel Core i5 and Intel Core i3, and the older Intel Core 2 Solo, Intel Core 2 Duo, Intel Core 2 Quad, and Intel Core 2 Extreme lines. Let us discuss the features of some current core processors.

Intel Atom

Atom is the new family of processors for Mobile Internet Devices. It is based on an entirely new microarchitecture designed specifically for small devices and low power, while maintaining the Intel Core 2 Duo compatibility. It is Intel's smallest and lowest power processor. The chip consumes about 0.6 - 2.5 watt and operates at 1.8 GHz clock speeds.

Atom processors became available to the system manufacturers in 2008. As they are soldered onto a mainboard, they are not available to home users or system builders as separate processors. It is used in HP Mini Series, Lenovo IdeaPad S10, Sony VAIO M and X series, Dell Inspiron Mini Series, Samsung NC10, Toshiba NB series to name a few.

The new Atom system on chip (SoC) platform released in 2012 is an attempt by Intel to compete with existing SoCs developed for the smartphone and tablet market from companies like Texas instruments,

Nvidia, Qualcomm and Samsung. Unlike these companies which use ARM architecture, Intel has tried to adapt the x86 based Atom line CPU developed for low power usage in netbooks, to even lower power usage.

Intel core i3

Intel core i3 processors are available as desktop processors as well as mobile processor.

The first Core i3 processors were launched on January 2010. Let us discuss some of the features of i3 processors:

- They offer perfect accuracy, high performance and response rate which in result provide the users with the high throughput rates, and also reduced time in executing the programs by the processor.
- It is fully equipped by the latest HD graphics with powerful and advanced video engine that provide smooth high quality display along with the 3d graphics capabilities.
- They provide hyper threading technology to its users which enable the multitasking capability of both user and the system. The systems with i3 processors can perform execution and compilation of two tasks simultaneously without causing executing delays. More than seven applications can run simultaneously on the system with i3 processor.
- They are smarter, faster and more adaptive in all kinds of networking scheme. They can be used with any hard disk configurations.

i3 processors have core speed of 3.06 GHz and 2.93 GHz which is very high as compared to the last configurations of Intel processors. They have four processing threads that enables multithreading and multi tasking. Additional cache memory of 4 MB is provided inside the processor.

Intel core i5

As compared to i3 processors, i5 processors are more advanced. i5 processors are available as desktop as well as mobile processor. Intel released desktop Core i5 microprocessor family in September 2009 and mobile core i5 in January 2011.

Let us discuss some of the features of i5 processors:

- They enhance the performance for different purposes such as gaming, reliable data transmission etc.
- It automatically manages the power supply where needed and does not break the speed and the performance of the system.
- They allow the user to enjoy heavy applications with the higher rate such as HD video composing or music composing and many more.
- They help users to work with the high bandwidth and great performance.
- Turbo boost technology or automatic overclocking functionality of i5 processors is the key beneficial feature of the i5 processors that allow the users to do their important working with the help of heavy applications.
- It consists of hyper threading technology that enables the users for multitasking by working on the two different tasks at the same time.
- They have ability to work with integrated memory and can enhance the performance of the applications. They increase the memory up to 1333 MHz.
- Micro architecture for the I5 processors was presented by the Nehalem and these processors have a cache rate up to 8 MB.

Intel core i7

After the development of i3 and i5 processor Intel introduced i7 processor that is comparatively faster than the earlier ones. i7 processors were designed to meet the challenges of the intelligent and the faster working performance of the computer system. They were designed in 2008 and were announced in 2009 just after the i5 processors. Let us discuss some of the features of i5 processors:

- They provide high data visualization technology to the users to view the high quality images and video graphics.
- They can support cache upto 8 to 12 MB for the high rate performance.
- Turbo Boost technology provides the high performance to the system to overcome the work load of different applications on the system and maintain the speed of the system.

- Like i5 and i3 processors i7 also have a feature of Hyper threading technology which enhances the activity and the speed of the system by managing the multitasking.
- They have ability to increase the memory up to 1066 Mbits and provide the working speed of 25.6 GB/sec.
- It has high clock speed of 3.2GHz

The major disadvantage of the i7 processors is that they are very much expensive to install.

There are different types of cores involved on the manufacturing of the Intel i7 processors but the common cores that are involved are Bloomfield, Lynnfield etc.

Centrino

Centrino is a mobile package, used to run laptops with long battery life with Wi-Fi capability. It includes a Pentium M processor. It is merely not a mobile central processing unit. It is a complete set of mobile CPU, wireless connectivity and chips embedded in a laptop. It helps people to connect with each other without the intervention of wires. It is build according to the 802.11 standards. These devices provide 24/7 wireless connectivity at the same time consuming very less electricity. These systems are designed to meet the individual as well as business needs. Student can use to become the part of the campus area network. It can also prove to be friend of audio and video film makers. It is also helpful for the people who make and edit documentaries. The reason is that this system is loaded with multimedia packages like coding/decoding video and play back editing.

It is preferred by those who like to work in CAP, wireless LAN and WAN networks.