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Intel Developments in Electronics

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Abstract:- **Integrated Electronics commonly known as INTEL CORPORATION is a MNC, Head quatered in California , in the silicon valley since 1968.It is the world's second highest valued semiconductor chip manufacturer and the invertor of the x86 series of microprocessors and one among the most commonly found Processor in Personal Computers.**
Intel corporation supplies processors for computer system manufacturers such as APPLE, LENOVO, HP &DELL. It also manufacturers motherboard chipsets , network interface controllers and integrated circuits , flash memory, graphics chips, embedded processors and other devices related to communications and computing .

INTEL PROCESSOR:-

A processor is the logic circuit that responds and process the basic instructions that operates a computer .The term processor is used interchangeably with the term central processing unit ,although strictly saying , the CPU is not the only one processor in a computer.Processors can be found in PCs, smart phones , tablets and other computers. Some Basic Elements are:-

➢ The Arithmetic Logic Unit (ALU),which carries out arithmetic and logic operations on the operands in Instructions.
➢ The Floating Point Unit (FPU), also known as math coprocessor or numeric coprocessor, a specialized coprocessor that manipulate numbers more quickly than the basic microprocessor can.
➢ Registers, which hold instruction and other data. Registors supply operand to the ALU and store the results of operation.
➢ L1 & L2 cache memory inclusion in the CPU saves time to get data from RAM.

INTEL CORE:

Intel core is a line of mid-to high-end consumer, workstation, and enthusiatic central processing unit (CPU) marketed by **Intel** corporation. These processors displaced the existing mid-to high-end pentium processors of the time, moving the pentium to the entry level, bumping the **celeron** series of processors to the low end.Identical or more capable versions of core processors are also sold as **xeon** processors for the server and workstations markets.There are two core types

1) CORE SOLO
2) CORE DUO

CORE SOLO:-

Intel Core Solo uses the same two-core die as the core duo, but features only one active core. Depending on demand, Intel may also simply disable one of the cores to sell the chip at the core solo price-this requires less effort than launching and maintaining a seperate line of CPUs that physically only have one core. Intel had used the same strategy previously with the 486 CPU in which early 486sx CPUs were in fact manufactured as 486dx CPUs but with the FPU disabled.

CORE DUO:-

Intel Core Duo consists on one die ,a 2 MBL2 cache shared by both cores, and an arbiter bus that controls both L2 cache and FSB access.

ADVANTAGES:-

1. Higher efficiency
2. Higher capacity to store elements

XEON SCALABLE PROCESSOR:-

There are many processors used in the intel so for on that cases this is the processor named xeon scalable processor is used to make a best core processor and where it is the very competitive processor in electronics marketing.

In Xeon scalable processor there are four types they are as follows:-

1. XEON GOLD INSIDE
2. XEON PLATINUM INSIDE
3. XEON SILVER INSIDE
4. XEON BRONZE INSIDE

DISCOVERING THE BENIFITS:-

• Faster time to value with Intelsolutions.
• Strong, capable platforms for the data-fueled enterprise.
• Next generation platform for cloud-optimized, 5G-ready networks, and next genration virtual networks.
• Breakthrough HPC and high-performance data analytics innovation.

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DEFINITION FOR ALL XEON TYPES:-

XEON GOLD:-
This processor was introduced in july2017. This processor consists of 14nm processor. This processor having four way features with up to 22 cores and 44 threads.

- MEMORY CAPACITY:-768 GIB
- INPUT OUTPUT:48PCLe Gen 3.0 lanes
- FEATURES:- Hyper –Threading, Tubo boosting, speed shift, vPro, Volume Management Device

It consist of omni-Path Architecture and this model will support 3 Ultra Path Interconnected (UPI) links.It is the higher performing micro processor and it consists of Dual/quad-socketmulti core performance server. And it having high scalability up to 4-way multiprocessing. And it having the rearchitected cache hierarchy designed for server workloads.

XEON PLATINUM :-

Xeon platinum is a family of 64-Bit x86 multi-socket multi-core highest performance server micro processors introduced by intel in 2017.This series offers the highest performance, highest scalability and highest flexiblity.

- MEMORY CAPACITY:- 769 GIB
- INPUT AND OUTPUT:- 48PCLeGen 3.0 lanes
- FEATURES:- Key Protectiion Technology (KPT), Platform Trust Technology (PTT).

This processors support Quick Assist Technology which is integrated on the chipset as well as the Omni -Path Architecture on the chipset as well as via discrete PCLe cards. All models support Ultra Path Interconnected (UPI) links.

XEON SILVER :-

Xeon Silver is a family of **64**-Bit **x86** dual-socket **multi-core** mid-range performance serrver microprocessors introduced by Intel in 2017.

OVERVIEW:-

This processor is the sucessor to the Xeon E5/E7 families. Xeon Silver is geared toward mid-range workloads dual-sockets server .Xeon Silver processors are a set of above the Xeon Bronze, offering additional features such as Hyper Threading and Turbo boosting.

All the silver 4100-series microprocessor features dual-socket capabilities with up to 12 cores and 24threads.This also contains the same memory capacity same input and output and same features like the previous processors.

All the Xeon Silver processors support Quick Assist Technology which is integrated on the chipset as well as the Omni-Path Architecture on the chipset as well as via

discrete PCL cards. All models also support Ultra Path Inter connected (**UPI**) links.

XEON BRONZE:-

Xeon bronze is a family of 64-Bit x86 dual socket multi-core entry- level server-class microprocessor introduced by Intel in 2017.

OVERVIEW:-

This processor is the successor to the xeon E5/E7families.Xeon Bronze is geared toward entry-level dual-socket server and workstation microprocessor. Those processors are ideally positioned for price sensitive applications which require light ranged workloads either the enhanced security features and large memory. Additionally, those processors incorporate a number of a Ultra Path Interconnected (UPI) links.

DISADVANTAGES:-

- No Turbo Boosting Technology
- No Hyper Threading support

The processor consists of 14 nm processor . And the memory capacity is same compared with the other three microprocessor and where the input and output slightly varies from other three processors. All the Bronze processors support the Quick Assist Technology which is integrated on the chipset as well as the Omni-Path Architecture on the chipset as well as via discrete PCL cards .All models also support 2 Ultra Path interconnected (UPI) links. There are two members sky lake and cascade lake.

PREVIOUS GENERATION PRODUCTS:-

In xeon there are many generations in that there are two families they are named as:-

- E7 family
- E5 family

PERFORMANCE:-

Built on 14nm process technology, the Intel Xeon Processor E5-2600 v4 family up to 22 cores/44 threads per socket and 55 MB last-level cache (LLC) per socket for increased performance ,as well as Intel Transactional Synchronization Extensions for increased parallel work load performance.

HIGHER CORE COUNTS:-

The potential for using more than one CPU in a system to increase threaded work load performance, There are more cores in this Xeon microprocessor they are :-

- CORE i3 PROCESSOR
- CORE i5 PROCESSOR
- CORE i7 PROCESSOR

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Threaded applications are the big boost for the Xeon type micro processor .

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CONCLUSION:-

I conclude that this Xeon processors are great for workstations and servers, or any time you need more multi-Threading performances or reliability than a main stream, single-CPU system can offer. We can see a major trend in the last couple of years towards Xeon based systems. Where the Xeon systems having the (**nm**) this means that nano meter which increases the speed and flow of processors where the hyper the dinng is used and quad core is very useful to use and search the contents quickly . It consists od less clock time and compring to other processors like ADM and SNAP DRAGON this micro processor is costly and it will work in a fair environment and in a very specified manner.