23BDS0255
Y. Mohan Kalyan.

Intel Core i3:-

The processor is a personal computer or embedded in a small device is often called microprocessor. This means the elements are contained on a single integrated chip IS.

Core I3 is a desktop/laptop processor with INTEL integrated graphics

Applications:

1) Laptop
2) computer
3) Android cellphones
4) AI TOOLS
5) Simulation

Specifications:- There are various versions and generations of the Intel core i3. Thus the specifications can vary based on the generation.

The power requirement range from 55W to 90W

→ Here is a general overview:-

1) Address Bus:- Typically they have a 64-bit address bus.

2) Data Bus:- The data bus is also a 64-bit one.

3) Clock speed:- The base clock speeds depend on the generation. They can vary from 0.4 GHz to 4.0 GHz

4) Cache memory:-

L1 cache - 32kB per core (64kB total).
L2 cache - 256kB per core (512kB in total).
L3 cache - 3 to 8MB shared between the cores.

Some other features of core i3:-

1) They have 4 processing threads for multithreading and multitasking
2) 14nm process
3) Intel HD Graphics

like other x86 Architecture CPU's they have variety of registers, General purpose registers (16), segment registers, instruction pointers, flags register, floating point and SIMD registers.

The CPU works with ddr4 / ddr3 type memory.

Overall, all these elements work together in tandem to increase efficiency.

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Intel Core i5

→ The core i5 features a more advanced architecture compared to core i3.

The i5 series microprocessors are built on various architures Nehalem, Sandy Bridge, Skylake and many more.

They typically have 4-6 cores depending on model generation and architecture. The newer ones also support hyper-threading.

- Registers- Registers in i5 are similar to i3 but enhanced.

- They are -
  1) General purpose Registers
  2) Segment registers
  3) Instruction pointers.
  4) Flag Registers.

→ This data bus is typically 64 bit loide.

→ Address is also a 64-bit bus.

Cache : L1 → 32 KB per core
L2 → 256 KB per core.
L3 → 3→ 12 MB shared among all cores

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- Registers- Registers in i5 are similar to i3 but enhanced.

They are -

1) General purpose Registers
2) Segment registers
3) Instruction pointers.
4) Flag Registers.

→ This data bus is typically 64 bit wide.

→ Address is also a 64-bit bus.

Cache : L1 → 32 KB per core
L2 → 256 KB per core.
L3 → 3→ 12 MB shared among all cores

Intel core i7 :-

→ It is a high performance microprocessor developed by Indigo.

→ Core Architecture -
Sandy bridge, Skylake etc.

→ Instruction set: x86-64 (64bit) with support for legacy x86 instructions.

→ The clock speed ranges from 2GHz – 5GHz ranging on generation & model.

→ Initially fabricated at 45NM but now at 10/14nm.

Modern i7's use a 64 bit address bit & a 64 bit wide data bus.
The bus interface is quickpath or DMI

cache : L1 – 32KB per core
L2 → 256KB per core
L3 → 4MB – 35MB depending on model.

The power ranges from 35W to 125W.

→ i7 is well suited for high performance tasks such as gaming, video-editing, AI workloads etc.

Eg. Ruy 29/03/25