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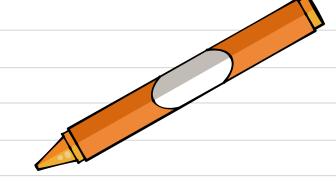
Conclusion from the topics discussed





INTRODUCTION









Microprocessor: Brain of Computer

Microprocessors are first invented by intel company in 1971. These are used in an area of requirement that requires a sort of processing. It takes control over each part of the function in computers.

They contain an algorithm and work according to the instructions given. Components of Microprocessor are:

- ALU
- REGISTERS
- CONTROL UNIT

These are further connected to input, memory unit and output devices.



Components of Microprocessor:

ALU

All the arithmetic and logical calculations on the data are done by the processor according to the input given.

Register

These are the temperory data storage locations ,they direct to the location where data is stored.

Control Unit

It dictates how the internal memory of the computer should respond to the given instructions and controls the flow of data between the microprocessor and the system.

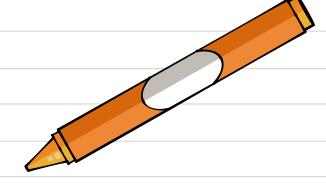






WHY WE USE MICROPROCESSOR?







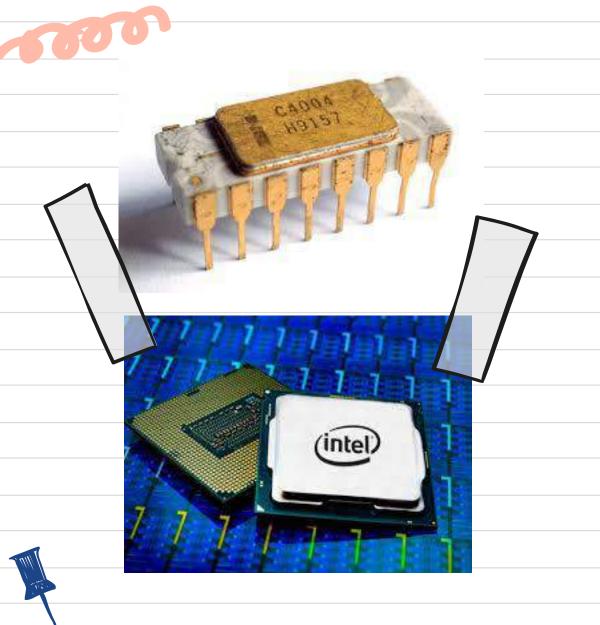




Why we use these chip-like processors?

- A microprocessor transmits, recieves and interprets the data needed for the device.
- These processors explicates the input and performs the programs accordingly and gives us the output.
- It involves 3 steps Fetch, Decode and execution
- First, it fetches the information, instructions are obtained from memory and then performs an accurate operation.
- Advantages of Microprocessor:
 - Capable of doing Multi-tasks at a very short period of time.
 - Important advantage is it's speed, with 3Hz of speed it can perform 3 billion tasks per second.
 - They consume less power which makes them efficient.
 - They are portable, versatile and reliable.





First and latest microprocessors:

First picture is the intel 4004 which was invented in the year 1971.

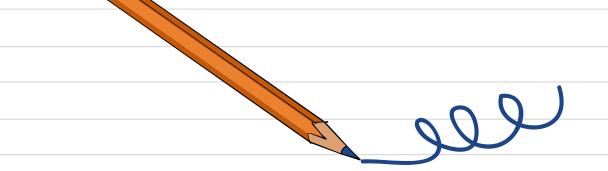
Second picture is the latest i9 microprocessor by the same company intel.

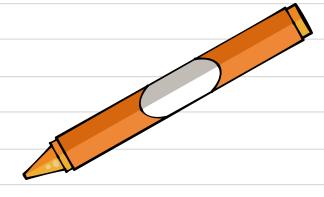






TYPES OF MICROPROCESSOR:







Different types of Microprocessors:

CISC

Complex Instruction Set Computer executes single instructions with low-level operations. These load memory and complex computations.

RISC

Reduced Instruction Set computer work with fewer instruction cycles. This the most commonly used processor.

Superscalar

It is capable of implementing instruction level parallelism, also executes multiple instructions per clock cycle. Resulting in that these microprocessors are very fast.

API

Application Specific Integrated Circuits are for specific purposes only. They are modern and entire microprocessor is in single chip.

Bit-Slice Microprocessor

BSM is a special type of microprocessor whose main purpose is to form a microprocessor of desired word size by combining identical BSMs.



Graphic Processor

Graphics Processors are specially designed processors for graphics. It is designed mostly for such heavy multimedia uses as games and movies.



Coprocessor

These are used to handle practical operations in a much faster way than the normal processor. One of such processor is 8007processor.

Input/Output

It is used to control IO devices. One of the example is DMA control and these types of processors have their own memory.

Digital Signal Processor

Digital Signal processors require term memory, input/output memory and program memory. Mainly used for processing analog to digital signals.

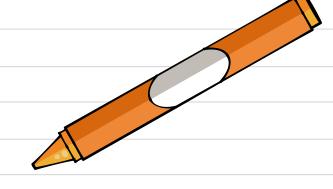






WORKING OF MICROPROCESSOR:





Design and Constituents:

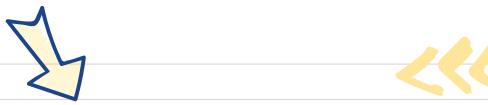
Design and constituents of ALU, Registers and Control Unit:

- As we know Microprocessor controls all the parts of computer basis of the instructions given by the input data to the computer.
- Design of ALU from the name itself we can understand that it is functioned as to operate mathematical and logical operations.
- Register arrays consist of registers identified by letters like B, C, D, E, H, L and accumulator and the control unit controls the flow of data and input instructions

Working of Microprocessor:

- We hav seen in the previous slides that the processor includes 3 steps Fetch, Decode and execute.
- These are nothing but working of processors, Initially instructions are stored in the memory of the computer, next it fetches the instructions and decodes it in memory and finally executes the output.
- Later on it results the binary output ,then it is passed to ALU where arithmetic operations takes placa and 1's and 0's are converted user required output.
- Terms which are generally used in Microprocessor are Instruction set, Bandwidth, Clockspeed,
 Cache Memory, Bus, Word Length and Data types.





Common Terms in Microprocessor:

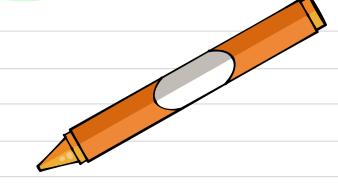
- ☐ Instruction Set: It gives instructions to the processor and converts the input to Binary.
- □ Band Width: Number of bits processed in a single step is nothing but width of bytes.
- □ Clock Speed: It decides number of operations the processor can perform per second.
- Cache Memory: RAM is integrated in cache memory so, it can access data faster.
- □ Bus: It is set of conductors which intend to transmit data. Addressing and controlling the information. There are Data, Control, and Address Bus to access the data.
- Word length: Length ranges from 4 to 64 bits based on the internal data bus, registers and ALU.
- □ Data types: Converting the input into ASCII, Binary or BCD etc.



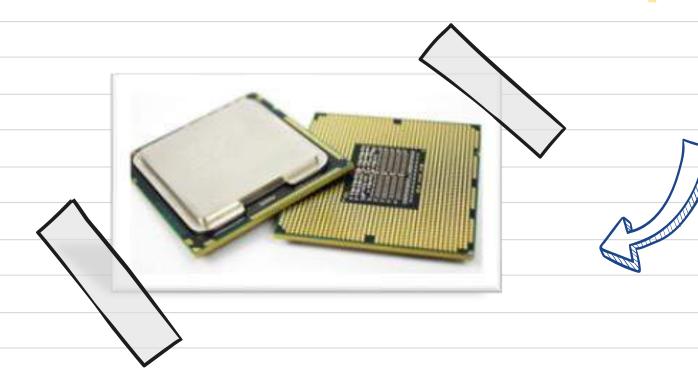


CORE OF A MICROPROCESSOR









Core in a CPU:

A Core gets guidelines and performs computation or activities. So, a CPU can have multiple cores.

These cores contain a single or multiple processors and they perform their tasks independent.

 According to the cores in a computers it depends on how efficient and faster the computer is working.





Types of Cores:



Single

A processor with single core. It is the first and oldest type of CPU core.

Dual

A processor with two cores.
It is a single CPU core that can function with dual CPU acting.

Quad

A processor with four cores. It is similar to dual core but, has four separate processors.

Hexa

A processor with six cores. It works rapidly than quad-core processores.

Octa

A processor with eight cores.

It can execute a task

effectively and efficiently.

Deca

A processor with ten cores. It can execute and manage a task rapidly.

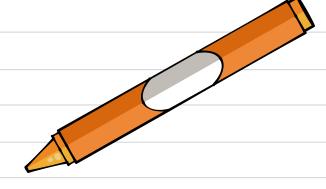
Deca is the sucesssful cores than compared to others.





MOORE'S LAW:











Moore's law states that number of transistors in microchip doubles every two years, although costs of computers is halved.

As the time continues all transistors and microprocessors became smaller and faster and also cheaper.

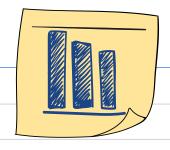
Benefits of Moore's law are:

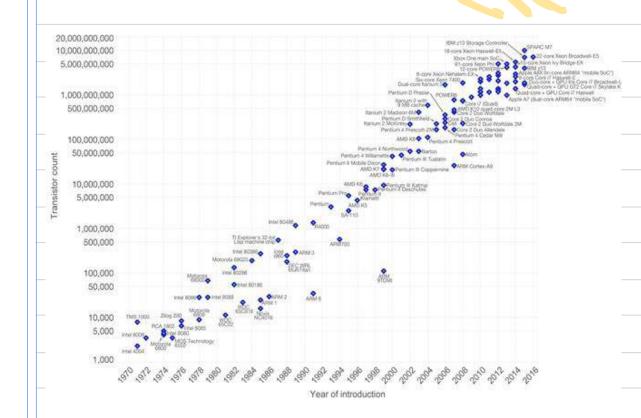
- Computing
- Electronic
- All sectors benefit

The transistors became more efficient, smaller, faster and cheaper as partly because low labor costs and decrease in prizes of semiconductors.



Graph of Impending Moore's law:





As shown in the logarithmic graph of the number of transistors on Intel's processors at the time of their introduction, his "law" was being obeyed.

Reason1

Scale of the chip component is getting reduced every year which will cause individual atom to get closer and closer making it technically hard.

Reason2

In 2007 interview Moore he himself stated that it will be difficult for any material to manufacture as we are pushing every element together and at some point we need to stop making things smaller.

Reason3

As the time flies Moore's law will be replaced by Neven's law.



CONCLUSION



04

Every sector from high-tech to medical got benefitted by microprocessor.

01

Portable, versatile, cheap and more efficient

MICROPROCESSOR

Revolutionalized the field of digital technologies.

It is one of the technological innovations!!

02







The developments in microprocessors since the year 1971 is tremendous. Improving it's architecture, speed, less power consuming, accessing more memory and making it more efficient.

06

Therefore, Computers with these processors, have enough power to compute many business, industrial and scientific tasks. Invention of these exceled the quick calculation which made them beyond human reach



Team Mates:



- 1) BANGARI VIVEKRAJ
- 2) SAI SARVAGNA
- 3) BOUDHIK SHAJ
- 4) C SAI KRISHNA KUMAR
- 5) C SIRI SANJAY
- 6) D KOUSHIK
- 7) DEVESH KUMAR



