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**VARIOUS TYPES OF MICROPROCESSOR IN TERMS OF PERFORMANCE SPEED AND POWER LEVELS.**

**What is a Microprocessor?**

A microprocessor which is also called a processor or central processing unit, but it is actually more advanced in terms of architectural design compare to the processor and is built over a silicon microchip.

A microprocessor is a component that performs the instructions and tasks involved in computer processing. In a computer system, the microprocessor is the central unit that executes and manages the logical instructions passed to it.

The microprocessor is capable of many functions and for a device to function properly the microprocessor has to be in constant communication with other hardware or devices incorporated into the computer system.

**TYPES OF MICROPROCESSOR IN TERMS OF SPEED,**

The size of a data bus, known as its width, is important factor in determining the speed of the processor because it determines how much data can be transmitted at one time.

**4 BITS MICROPROCESSORS**: the 4-bit microprocessor was the first general purpose microprocessor introduced on the market, it came in the form of the Intel 4004 microprocessor which was designed as a processing element of a desk calculator and not as a general purpose processor the shortcomings of 4004 were recognized as soon as it was introduced.

**8 BITS MICROPROCESSOR:** 8-bit microprocessors coexist with 16-bit microprocessors as the design standard. Although 16-bit chips provide higher performance computationally, 8-bit designs have more than adequate power for many applications plus the advantage of lower cost.

**16 BITS MICROPROCESSOR:** 16 bits microprocessor have registers of 16 bit wide and provide a wide range of 16 bits operations. The 16 bits microprocessors are fasters compare to its predecessors due to increased arithmetic logic unit and wider data bus.

**32 BITS MICROPROCESSOR:** The 32-bit processor was the primary processor used in all computers until the early 1990s . Intel Pentium processors and early AMD processors were 32-bit processors. , in that they work with data units that are 32 bits wide, they can do more calculations at once than the previous ones and were faster.

**64 BITS MICROPROCESSOR:** These types of microprocessors are the ones in use currently and are faster, perform more calculations per second than their predecessors Software programs that require many calculations to function smoothly can operate faster and more efficiently on the multi-core 64-bit processors.

**TYPES OF MICROPROCESSOR IN TERMS OF PERFORMANCE**

In terms of performance there are two types of computers which are general purpose processor and special purpose processor.

**GENERAL PURPOSE PROCESSOR**: a general-purpose microprocessor is capable of performing many different functions under the direction of instructions. Given a different instruction set or program, the general-purpose microprocessor will perform a different function. On the other hand, a general-purpose microprocessor can also be viewed as a dedicated microprocessor because it is made to perform only one function, and that is to execute software instruction.

**SPECIAL PURPOSE MICROPROCESSOR:** This types of microprocessor have specialized functions. There are different types examples are Coprocessors, Transputer, digital signal processors, and graphics processing units.

COPROCESSORS: The coprocessor is designed for a specific purpose, it can handle its particular function many times faster than the ordinary general purpose. The most well know coprocessor is the math-coprocessor.

TRANSPUTER: The transputer (transistor computer) is a high performance microprocessor designed to facilitate inter-process and inter-processor communications. The most important feature of the transputer is its external links, which enable it to be used as a building block in the construction of low cost, high performance multiprocessing systems

DIGITAL SIGNAL PROCESSOR: This processor is specially designed to handle real-world analog signals that have been converted to digital representations.

GRAPHICS PROCESSING UNIT: They are designed for real time rendering of 3D images.

REFERENCES.

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