A. .*MicroprocessorTecnology2022/23*

The best processors are the most essential part of any PC. And, given that they are the brains of the entire operation, it's very important that you choose the best performing, most power-efficient one you can afford. In addition to performing the vital operations that actually make the machine run, the best Intel processors and the best AMD processors even come with integrated graphics processors, which offer massive savings since the best graphics cards can cost hundreds of dollars. If you do not need a dedicated GPU, that is.

With the release of Intel Raptor Lake and the AMD Ryzen 7000-series processors, the very best processors from the previous generations are getting some healthy price cuts, which means more savings for you. Although, if you are looking for high-end builds, you'll find some excellent high-end CPUs are going to provide outstanding levels of performance when it comes to content creation or playing the best PC games at high frame rates, making them worth the splurge.

We've tested the best CPUs on the market, putting them through their paces to see how they perform in the real world. And, we're here to help you make the right choice for your needs and budget. Whether you want something to power your family desktop PC or are looking for a powerful chip for content creation, we have a terrific option for you below he AMD Ryzen 9 7950X is easily the best processor on the market right now with incredible performance, energy efficiency, and support for the latest DDR5 and PCIe 5.0 technology.

Click here:- https://www.youtube.com/@education4u469

Clickhere:https://www.youtube.com/watch?v=6R7JDkpG1Wk&list=PLrjkTql3jnm8HbdMwBYIMAd3UdstWChFH

Microprocessor _ Introduction _ MPC

B. *Vacuum Tube*

Among the common applications of vacuum tubes are amplification of a weak current, rectification of an alternating current (AC) to direct current (DC), generation of oscillating radio-frequency (RF) power for radio and radar, and creation of images on a television screen or computer monitor. Often vacuum-tube computers made extensive use of solid-state ("crystal") diodes to perform AND and OR logic functions, and only used vacuum tubes to amplify signals between stages or to construct elements such as flip-flops, counters, and registers.

Alternatively called an **electron tube** or **valve** and first developed by John Ambrose Fleming in 1904. The **vacuum tube** is a glass tube with its gas removed, creating a vacuum. Vacuum tubes contain electrodes for controlling electron flow and were used in early computers as a switch or an amplifier. The picture shows a collection of different vacuum tubes used with different devices.

By using vacuum tubes instead of mechanical relays, computers could move away from mechanical switching and speed up switching on and off the flow of electrons. Vacuum tubes were also used in radios, televisions, radar equipment, and telephone systems during the first half of the 1900s. In the 1950s, the invention of the transistor started to replace the vacuum tube, as vacuum tubes were larger, fragile like a light bulb, and expensive. As computing devices started to become smaller in size, transistors were more ideal to use due to their smaller size.

Today, vacuum tubes are primarily used in high-end audio equipment, preferred by some audiophiles as an alternative to digital systems.
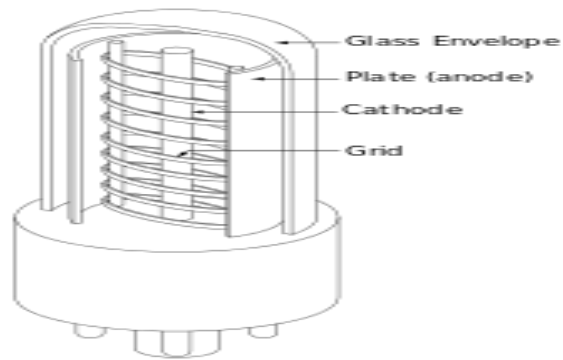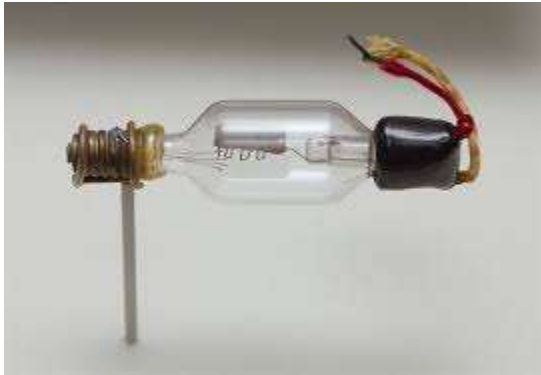
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https://www.youtube.com/watch?v=6R7JDkpG1Wk&list=PLrjkTql3jnm8HbdMwBYIMAd3UdstWChFH

Triode Vacuum
Tube_ History & Phy

Vacuum tube

C. *Evolution of Sensors*

The history of remote sensing **begins with photography**. The origin of other types of remote sensing can be traced to World War II, with the development of radar, sonar, and thermal infrared detection systems. Since the 1960s, sensors have been designed to operate in virtually all of the electromagnetic spectrum.

Smart Sensors is a technique **developed in the 70's** when the processing capabilities, based on readout integrated with signal processing, was still far from the complexity needed in advanced IR surveillance and warning systems, because of the enormous amount of noise/unwanted signals emitted by operating scenario.

A **sensor** is a device that produces an output signal for the purpose of sensing a physical phenomenon. In the broadest definition, a sensor is a device, module, machine, or subsystem that detects events or changes in its environment and sends the information to other electronics, frequently a computer processor. Sensors are always used with other electronics. Sensors are used in everyday objects such as touch-sensitive elevator buttons (tactile sensor) and lamps which dim or brighten by touching the base, and in innumerable applications of which most people are never aware. With advances in micromachinery and easy-to-use microcontroller platforms, the uses of sensors have expanded beyond the traditional fields of temperature, pressure [1] and flow measurement.

As IoT technology and platforms grow, so does sensor technology. As the market accelerates on the merit of monitoring and measuring distant assets and parameters, it is driven by the newfound value of predictive analytics and shaped by the innovation of monitoring many different data points from a single platform. Consequently, the technology of the hardware and sensors that convert analog information to digital data is evolving as well, as if to signal a modern-day industrial renaissance.

Click link here:-

https://www.youtube.com/watch?v=6R7JDkpG1Wk&list=PLrjkTql3jnm8HbdMwBYIMAd3UdstWChFH

Evolution of smart
sensors briefly expla

Sensor Technology

Sensor technology is the measurement of various information by sensors. Sensor technology is a general term for technologies that quantify and utilize information obtained by sensing in this way. Sensor technology includes measurement, quantification, and transmission. In sensor technology, various possibilities are created by applying quantitative data obtained by sensors. The spread of IoT has further increased its potential and importance. In the IoT where things and the Internet are connected, what is actually handled is information that represents the state of things. Sensor technology plays a role in acquiring this information, and it is expected to be applied to all industries as an indispensable technology for IoT.

The evolution of sensor technology expands the range of information utilization indefinitely.

As the type, quantity, and accuracy of information obtained through sensing increase, the technology that applies it has even greater potential. The combination of sensing and IoT, big data, AI, and edge computing has great expectations not only in various industries, but also in medical and space development.

D . ARM

An Arm processor is one of a family of central processing units (CPUs) based on the reduced instruction set computer (RISC) architecture for computer processors. Arm Limited, the company behind the Arm processor, designs the core CPU components and licenses the intellectual property to partner organizations, which then build Arm-based chips according to their own requirements. Arm Limited does not manufacture or sell any chips directly.

Acorn Computers first developed the Arm processor in the 1980s. Until recently, the name *Arm* was treated as an acronym, *ARM*, which at first stood for *Acorn RISC Machine* and then for *Advanced RISC Machine*. The acronym is still widely used, although Arm Limited uses only *Arm* when describing its processor technology.

Arm Limited offers designs for both 32-bit and 64-bit RISC multicore processors. The processors use a much simpler instruction set than their Intel counterparts, which are based on the complex instruction set computing (CISC) architecture. The two types of processors also employ different methods to optimize performance and increase efficiency. For example, Intel takes a hardware approach to maximizing performance, whereas Arm takes a software approach.

Arm CPU processors offer the widest range of processor cores to address all performance, power, and cost requirements. Includes the industry-leading Cortex-A series, the ultra-low power Cortex-M series, real-time Cortex-R series, server ready Neoverse series, Secure Core series and machine learning solutions.

ARM a programming language

Assembly language is a low-level programming language. There is in general, a one-to-one relationship between assembly language instructions (mnemonics) and the actual binary opcode executed by the core.

ARM processors are a family of central processing units (CPUs) based on a reduced instruction set computer (RISC) architecture. ARM stands for Advanced RISC Machine. ARM architectures represent a different approach to how the hardware for a system is designed when compared to more familiar server architectures like x86. The ARM ecosystem has emerged over the last several years with server optimized products and solutions that are designed for cloud and hyperscale computing, telecommunications, and edge computing, as well as high-performance computing (HPC) applications.

Click link here :-

https://www.youtube.com/watch?v=6R7JDkpG1Wk&list=PLrjkTql3jnm8HbdMwBYIMAd3UdstWChFH

Raspberry Pi 4
Alternatives_ Five AF