Identifying the components on the raspberry PI B+

CPU/RAM, display, Ethernet, Ethernet Controller, USB, Power, HDMI

How many cores does the Raspberry Pi’s B+ CPU have

The Pi 3 Model B+ has a 1.4GHz **64**-bit quad-core Broadcom Arm Cortex A53-architecture processor compared with the Raspberry Pi 3 Model B's **1.2**GHz CPU.

List three main differences between X86 (CISC) and ARM Raspberry PI (RISC)

A RISC processor can focus on the number of instructions while keeping those instructions very simple. A RISC core has a low power design. An ARM based device can also run operating systems that is specifically for mobile devices.

What is the difference between sequential and parallel computation and identify the practical significance of each?

Sequential Computing is when a problem is broken into a series of instructions and they are executed sequentially one after another

Parallel computation is the simultaneous use of multiple compute resources to solve a problem

Identify the basic form of data and task parallelism in computational problems.

Task parallelism is parallelization of code across multiple processors

Data Parallelism is parallelization on multiple cores of the same function across the elements of a dataset.

Explain the differences between processes and threads.

Threads are used for small tasks, whereas processes are used for bigger tasks. Threads in the same process share the same address, but different processes do not.

What is OpenMP and what is OpenMP pagmas?

OpenMP is open multi processing. It is an API that supports multiprocessing programming. OpenMP pragmas are compiler directives that enable the compiler to generate threaded code.

What applications benefit from multi-core?

Database servers

Webservers

Compilers

Multimedia applications

Why Multicore?

For a multicore:

Run on less frequency, Reduced Power dissipation, reduced temperature, and overall better processing than a single core.