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## Basic concepts in computer architectures

*Monday, 23 February 2015 09:30 (1 hour)*

This lecture will provide the participants with the foundations of the computing hardware. It will set of from the early theoretical abstraction. Then, a model of a simple processor will be discussed. Subsequently, we will focus on various architectural features present in the modern hardware and will try to understand their roles and delivered gains.

**Targeted audience:** This lecture targets all participants with interest in computer architectures. However, the most benefits will be taken by physicists and engineers who have a programming experience, but didn't complete a course in computer architectures. The lecture gives supplementary informations to the material presented in the main CSC and is not supposed to explain all the concepts from the ground up.

**Benefits of attending the lecture:** After this lecture, the participants will have an understanding of the role of basic functional units in the CPU. They will be also able to enumerate techniques used in modern processors to increase performance.

**Prerequisites:** This lecture targets people having computer programming experience and basic notion of the computer architectures.

**Presenter:** SZOSTEK, Pawel (CERN)

**Session Classification:** Evolution of processor architectures: growing complexity of CPUs and its impact on the software landscape