

MVŠO

MORAVSKÁ VYSOKÁ ŠKOLA OLMOUC



Basic Principles of Computer Operation. Computer Hardware Components

Ing. Vladimír Horák

Review

- Data – any piece of data
- Information – "data in context"
- Abstraction – a logical method that hides information that is not important at the given moment
- Representation – the way data is stored in a PC
- Interpretation – assigning meaning to data
- Binary system – (0;1)
- Byte < KB < MB < GB < TB

Today's Lecture Content

- Computer Architecture
- Hardware and Software
- Computer Components

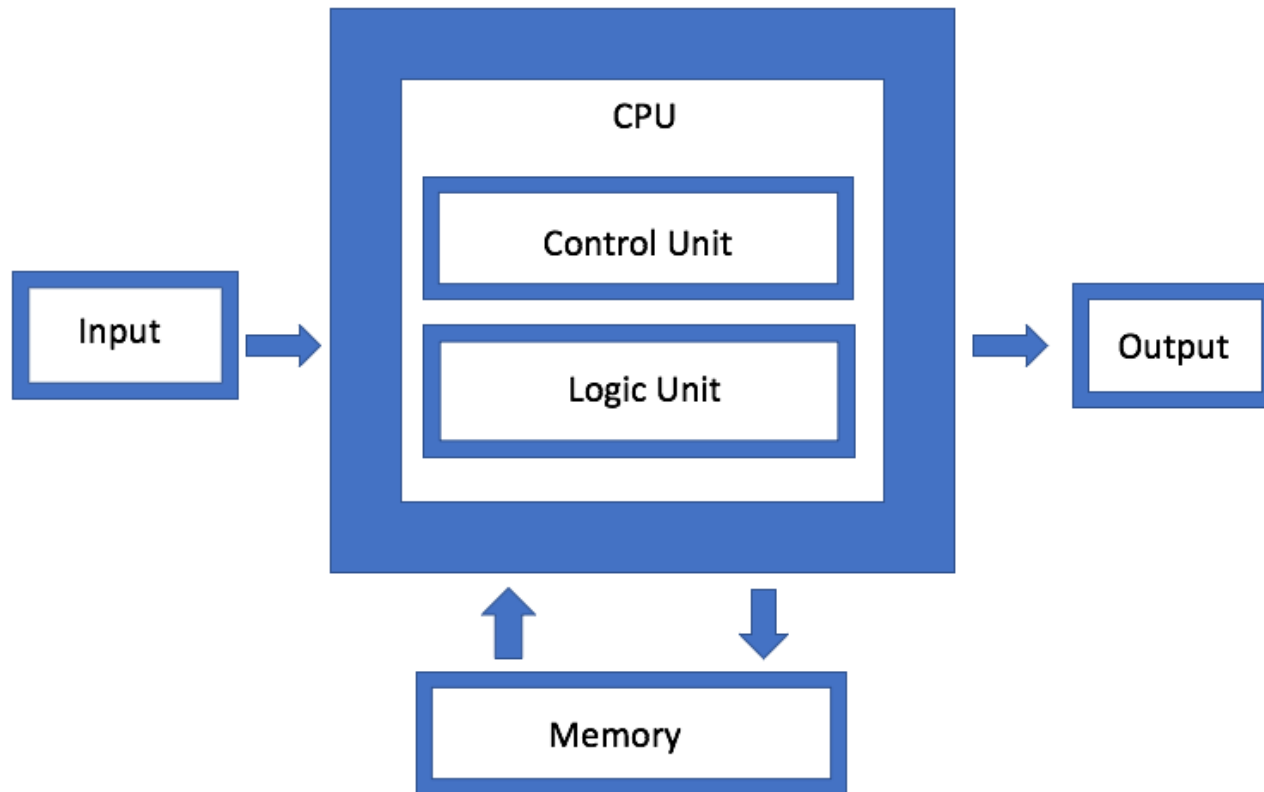
Computer Architecture

- "Logical structure" of which a computer is formed
- Describes what parts a computer must have and how they are interconnected
- Dva nejznámější typy
 - Von Neumann architecture
 - Harvard architecture

Von Neumann Architecture

- Control Unit
- Arithmetic Logic Unit (ALU)
- (Internal) Memory
- Input and Output Devices
- External Memory

Von Neumann Architecture



Hardware and software

- Hardware – all physical computer devices
- Software – a series of instructions through which we can connect with the computer and control its hardware

Hardware and software

- Peopleware – the human role (factor) in technology, both programmers and users
- Orgware – rules and regulations related to the use of Information Systems (IS)

Computer Hardware Components

- Individual components that make up a computer...
- Computer case, motherboard, processor, RAM, storage drive, graphics card, power supply unit, ports...
- Monitor, keyboard, mouse, speakers, microphone, specialized peripherals

Computer Case

- "Enclosure" for components



Motherboard

- Connects other components together
- Provides essential ports
- Offers connectivity options



Processor (CPU)

- The "brain" of the computer
- Key specs:
 - Number of cores
 - Clock speed



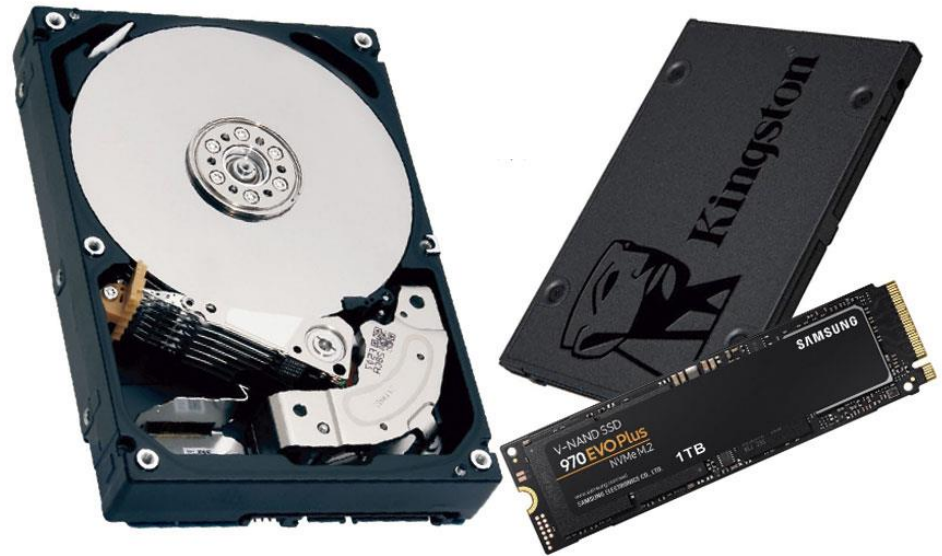
RAM – Operating Memory

- Used for current calculations
- Key specs:
 - Memory capacity
 - Clock speed



Storage Drive

- Storage for user data
- HDD vs. SSD
- Key specs:
 - Capacity
 - Read and write speed



Graphics Card (GPU)

- Used to process visual output
- Integrated vs. dedicated



Power Supply Unit (PSU)

- Distributes power to the entire PC



Ports

- Connecting the PC with peripherals



Monitor

- Display device
- Key specs:
 - Screen size / Diagonal
 - Resolution



Keyboard

- Input device



Mouse

- Input device



Speaker

- Audio output device



Microphone

- Audio input device



Specialized Peripherals

- Input devices for special needs



Any questions?

Thank you for your attention.