

## Exercise sheet 1x – Basic setup and first steps

### Goals:

- Definition of computer architecture vs. computer organisation
- Computability
- Recap „IT-Systeme“ lecture
- Check your own computer

### Exercise 1x.1: What does computer architecture mean?

- (a) Describe in your own words the meaning of computer architecture.
- (b) Describe in your own words the meaning of computer organisation.

### Exercise 1x.2: Computability (recapitulation semester 1–3)

- (a) Can you make a statement as to whether a calculation is computable on a particular computer architecture (e.g. Intel), but not on an other (e.g. PowerPC)?

### Exercise 1x.3: Compatibility

- (a) State some examples for compatibility (also from everyday life).
- (b) Does every change to an HSI cause incompatibility?

### Exercise 1x.4: C and assembler knowledge

- (a) Recap your „IT-Systeme“ knowledge:
  - Assembler coding
  - Registers
  - Digital components
- (b) Recap your „programming“ knowledge:
  - C, data types, arrays, character arrays (strings)
  - Pointers
  - Structs, unions

### Exercise 1x.5: Check your own computer

- (a) Which CPU do you have (vendor, type, frequency, number of cores)?
- (b) How many transistors has your CPU?
- (c) How much RAM and which type of RAM do you have?
- (d) Which GPU do you have?
- (e) Which data storage (hard disc/SSD) do you have (vendor, type, capacity, speed)?