

7 Introduction to Computer Architecture (swm11)

- (a) In Flynn’s taxonomy of computer architectures four design spaces are identified and given the following labels: SISD, SIMD, MISD, MIMD. What do these abbreviations stand for? Give an example use case for each space in this taxonomy. [6 marks]
- (b) More recently SIMT systems have appeared. What does SIMT mean? What commercial processors implement the SIMT model? [2 marks]
- (c) Modern systems-on-chip typically contain processor cores of different size and microarchitecture. What are the advantages of this approach? [4 marks]
- (d) How does the handling of data-dependent control-flow differ between RISC-V based processors and GPUs? [4 marks]
- (e) What techniques are used to mitigate memory access latency overheads by RISC-V cores and GPUs? [4 marks]