

## Midterm

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What is architecture

- difference from microarchitecture/organization
- its design principles (and think about their practice\*)

ISAs

- instruction classes
- encoding\*
- addressing modes
- pseudoinstructions\*

Procedure calls

- calling conventions
- stack usage\*

Other architectures

- how architectures have changed over time
- RISC philosophy & characteristics
- CISC philosophy & characteristics

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Performance metrics

- what they should/should not be used for
- actually putting them into practice\*

Implementation

- execution cycle
- datapath
- control
  - what signals are needed & why
  - how they are generated
- can you design an implementation?\*
- single vs. multiple cycle implementations
  - why have the latter
  - what changes it requires in the single-cycle implementation
- finite state machines
  - what are they
  - how they work\*
- microprogramming
  - what it is
  - how it works\*