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# Bits of Architecture

— What is Architecture? —

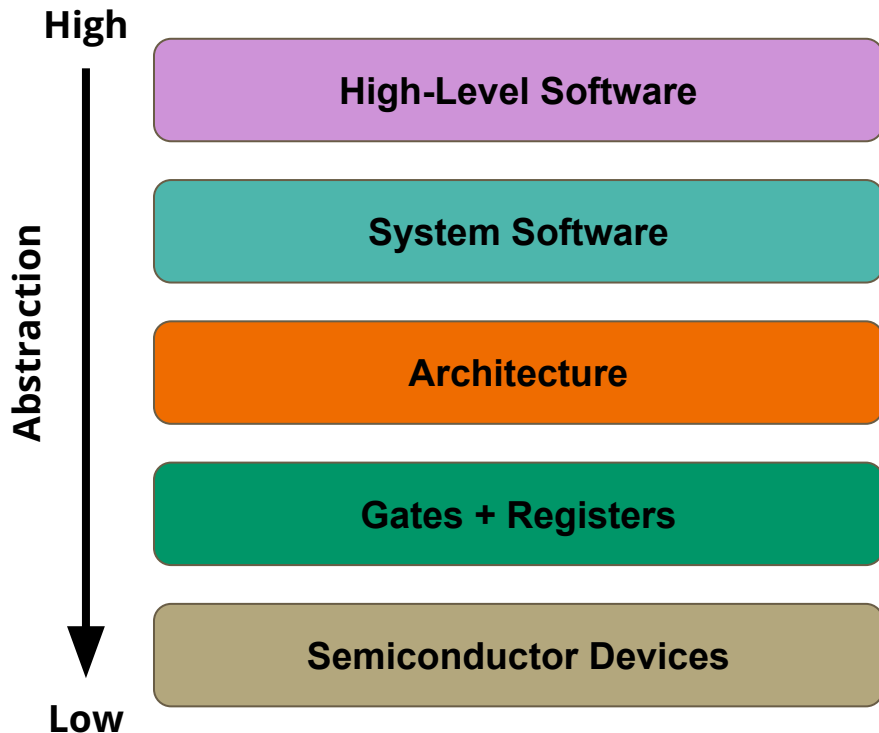
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# What is Computer Architecture?

## A Layer of Abstraction

- **Architecture** describes the **operation** and **organization** of hardware components
- Architecture sits ~ in the middle of these layers
- Requires us to look at both higher and lower levels of abstraction (**why?**)



# Why Do We Care About Other Layers?

# The Other Layers Influence Architecture!

## Why do we care about higher-level software?

- We design computers to run software
- Hardware **must** be programmable

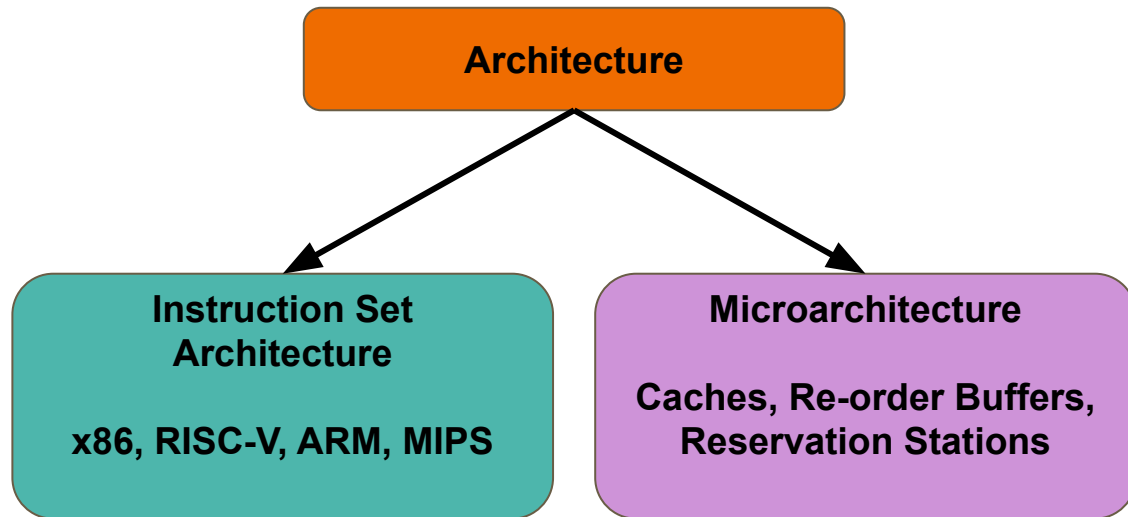
## Why do we care about lower-level hardware?

- Someone must be able to implement our architecture
- Hardware has limitations (power+area)

# What Goes into Architecture?

# ISAs and UArch

- Architecture can further be broken down into instruction set architecture (**ISA**), and microarchitecture (**uarch**)
- The **ISA** is the interface provided to software
- The **uarch** is the detailed hardware design



# The “Computer” Part of Computer Architecture



# Classes of Computers

