

What is computer architecture?

- How did the concept of computer architecture come about?
 - developed for the IBM 360 mainframe, 1964
 - wanted a family of computers
 - wanted all software to execute on all implementations

What is computer architecture?

- a model of the hardware as seen by the lowest levels of software, e.g., compilers, the operating system
- a contract between the hardware & this software
- “The structure of a computer that a machine language programmer must understand to write a correct (timing independent) program for that machine.”

What is computer architecture?

- What does that mean in particular?
 - instruction set design
 - word size, amount of addressable memory
 - portions of the microarchitecture, to generate more efficient code
 - pipeline structure
 - cache organization
 - Think about what else, as we learn new hardware techniques.