

Notes for 8/26/09

Harvard architecture – instructions and data are in separate memories (this is common in embedded applications, e.g. when instructions are in EEPROM and data is in RAM)

von Neumann architecture – instructions and data are in same memory (this is your common desktop/laptop and what we will be primarily studying this semester)

Control path – program counter (jumps, branches)

Data path – registers, memory (load, store, add)

MIPS is a load-store architecture—you can only do operations on data in registers, so if you want to do operations on data in memory, you have to load it into a register, do the operation, and then store it back to memory

RISC vs. CISC

RISC is a “reduced instruction set” where instructions cannot do multiple low-level operations, such as a load from memory, add, and store to memory. CISC is a “complex instruction set” where there are instructions that can do multiple low-level operations.

Instruction set architecture – the part of the processor accessible to the programmer, the low-level division between hardware and software