

Homework 9

Assigned: April 7, 2025

DUE: April 14, 2025 by 11:59PM in Gradescope

Show all work for full credit.

1. Given the Verilog ROM declaration in the Memory slides, what would need to change in the module to describe a RAM? You do not need to write the code, a description of signals and operations suffices. **(20 pts)**
2. List and briefly describe the function of 3 busses present in any modern processor. **(20 pts)**
3. Explain the 3-step process of running an instruction in a CPU. Include as much detail as needed to understand the operation. **(20 pts)**
4. Briefly compare and contrast CISC and RISC approaches to processor design. **(20 pts)**
5. Show the memory contents based on the memory file given below. Assume 16-bit words. If there are any unused locations between other populated locations, set the unused location values to zeros. If a location does not have enough bits to be fully populated, set the remaining least significant bits to zeros. **(20 pts)**

@00 11 22 33 44 55 66 77

@05 aa bb cc dd ee ff

77

88

99

@04 ab