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ECE 242 Homework 8

1. The ALU stands for Arithmetic and Logical Unit, which is used to perform arithmetic and logical operations. The register is used to store the result of the operations.

2. The register which contains or interprets the instruction is known as the instruction register, while the register that contains the address of the instruction to be executed next is known as program counter.

3. Explain the difference between a bus and a control line

Bus are connection lines used to connect the internal parts of the microprocessor chip while the control lines are used to carry the control signals and timing signals.

4. Microwave is one of the kitchen appliances that contains a control unit with issues different types of control signals like quick 30 seconds, start, stop, etc.

5.

   a) The sequence of operations that must take place within a MIPS processor to fetch and execute the "store word" instruction the initial step is The processor loads the store word immediate instruction from the PC.

   b) After the first step takes place then During the operand fetch phase, the target register (Rs) is loaded, and the register containing the address to store at (Rt), are decoded during this stage.

   c) The offset is loaded from the instruction.

   d) During the execute phase, the 32-bit address is routed to the ALU.

   e) In the write back phase, the word in the source register is stored at the address in the target register.