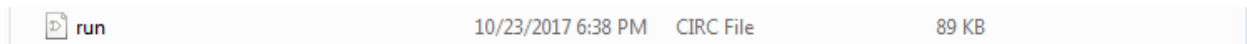
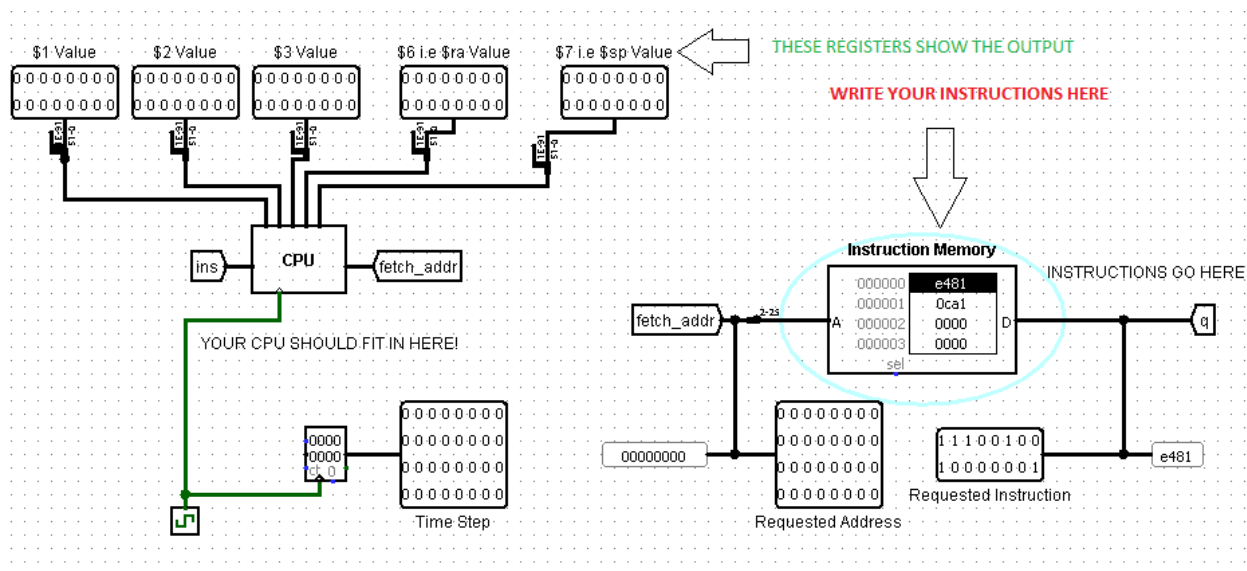


16-BIT Single Cycle MIPS Processor

For using the MIPS PROCESSOR, run the application run.circ which is present in the directory.



Once you open the file it will look something like the following.



FUNCTIONS SUPPORTED:

The processor supports the following operations:

- ADD OP-000 FUN-0000 R-TYPE INSTRUCTION
- SUB OP-000 FUN-0001 R-TYPE INSTRUCTION
- AND OP-000 FUN-0010 R-TYPE INSTRUCTION
- OR OP-000 FUN-0011 R-TYPE INSTRUCTION
- SLT OP-000 FUN-0100 R-TYPE INSTRUCTION
- JR OP-000 FUN-1000 R-TYPE INSTRUCTION
- LW OP-100 I-TYPE INSTRUCTION
- SW OP-101 I-TYPE INSTRUCTION
- BEQ OP-110 I-TYPE INSTRUCTION
- ADDI OP-111 I-TYPE INSTRUCTION
- SLTI OP-001 I-TYPE INSTRUCTION
- J OP-010 J-TYPE INSTRUCTION
- JAL OP-011 J-TYPE INSTRUCTION

NOTE:

❖ **R-Type instruction:**

3 bit opcode + 3 bit reg(S) + 3 bit reg(T) + 3 bit reg(D) + 4 bit fun

❖ **I-Type instruction:**

3 bit opcode + 3 bit reg(S) + 3 bit reg(T) + 7 bit Immediate value

❖ **J-Type instruction:**

3 bit opcode + 13 bit address

- ❖ \$0 is hardwired to 0.
- ❖ For beq instruction the offset + 4 will be the next address

EXAMPLES:

1. Addi \$1, \$0, 0x10 will be e08a (1110 0000 1000 1010) in machine code.
2. Sub \$1,\$1,\$1 (Must result in 0) will be 0491 (0000 0100 1001 0001).
3. J 0x20 (Must jump to 32nd (0x20 th) location) will be 4020
(0100 0000 0010 0000).

- Submitted By:

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