Full set Of Instructions

For a custom CPU

Arithmetic Operations:

- **add <register>, <register | imm8>:**

  Add the left and right and store in the left

- **sub <register>, <register | imm8>:**

  Subtract the right from the left and store in the left

- **cmp <register>, <register | imm8>:**

  Compare the left and right. If the two values equal each other a bit is set in the Flag register. Also sets the not zero and zero flags for the left side.

- **nad <register>, <register | imm8>:**

  Nand instruction. Nands the left and the right and stores in the left

- **nor <register>, <register | imm8>:**

  Nor instruction. Nors the left and the right and stores in the left

Conditional Logic and Jumps:

- **jeq <A | B | imm16>:**

  Jump if equals jumps to the specified address (This can also be the name of a label) if the flag for equality in the flag register is set.

- **jnq <A | B | imm16>:**

  Jump not equal jumps to the specified address (This can also be the name of a label) if the flag for equality in the flag register is not set

- **jnz <A | B | imm16>:**

  Jump not zero jumps to the specified address if the first register of the last cmp instruction wasn't zero (This address can also be the name of a label)

- **jzr <A | B | imm16>:**

  Jump if zero jumps to the specified address if the first register of the last cmp instruction was zero (This address can also be the name of a label)

- **jmp <A | B | imm16>:**

  Jumps to the specified address (This can also be the name of a label)

Data Movement:

- **inp <register>, <A | B>:**
  Stores the value of a 16 bit address (A or B) in the specified register

- **out <A | B>, <register>:**
  Writes the value of the register into the specified I/O port

- **lad <A | B>, <imm16>:**
  Loads a specified 16-bit value into A or B (This value can also be the name of a label).

- **ldr <register>, <A | B>:**
  Loads a byte of the ram at the address in A|B in the register.

- **lod <register>, <imm8>:**
  loads a given 8-bit value into the specified register.

- **mov <register>, <register>:**
  Moves the value of the right register into the left register

- **wtr <A | B>, <register>:**
  Puts a byte in register into the ram at the address in A|B.

- **db <imm8>**
  Dumps data at the address db is at in code.

Other:

- **nop:**
  Does nothing.

- **int:**
  triggers the software interrupt.

- **ire:**
  Interrupt return