



| Operation | Op-Code |
|-----------|---------|
| Load      | 00      |
| ALU       | 01      |
| JMP       | 10      |
| Call      | 11      |

| Instruction Name    | Arguments  | Instruction (Binary) | Description  |
|---------------------|--|----------------------|--|
| Define name value   | Name: name of variable or label of address                         |                      | Define variable. Should be in first of code.   |
| Ld_Input reg        | A: Destination Reg<br>A: Destination Reg                           | 0000AAXX             | Directly puts input to selected reg.   |
| Ld_Sram reg name    |  | 0001AAXX             | CPU Reads next word of memory to fetch Address.  |
| LDOutput            |  | 001XXXXX             | Load output reg by current ALU out.  |
| Add a b c d shl     | A: In1=A?regB:regA<br>B: In2=B?regD:regC<br>C: Shl ALU Out if true | 01000ABC             | ALU immediately write in Alu_Out. After a clock, value of regBuff fills by alu_out. By set Argument that specified by 'C', regBuff fill by alu_out<<1. |
| Sub a b c d shl     |  | 01001ABC             |  |
| In1 a b c d shl     |  | 01010ABC             |  |
| In2 a b c d shl     |  | 01011ABC             |  |
| And a b c d shl     |  | 01100ABC             |  |
| Or a b c d shl      |  | 01101ABC             |  |
| Xor a b c d shl     |  | 01110ABC             |  |
| Shl a b c d shl     |  | 01111ABC             |  |
| Jmp dir ind address | A: Direct if is True   | 100AXXXX             | Jump to address with no conditions. Destination address is in next memory block.   |
| Jz dir ind address  |  | 101AXXXX             | Jump to address if alu zero flag is set.   |