IR register (16 bit)

|  |  |  |  |
| --- | --- | --- | --- |
| Op code  (2 bits) | Func  (3 bits) | Rsrc  (3 bits) | Rdst  (bits) |

Op code

|  |  |
| --- | --- |
| 00 | One operand |
| 01 | Two operand |
| 10 | Memory |
| 11 | Branch |

One operand functions (00)

|  |  |
| --- | --- |
| 000 | No op |
| 001 | Set carry |
| 010 | Clear carry |
| 011 | Not rdst |
| 100 | Increment rdst |
| 101 | Decrement rdst |
| 110 | Out rdst |
| 111 | In rdst |

Two operand functions (01)

|  |  |
| --- | --- |
| 000 | Mov |
| 001 | add |
| 010 | Sub |
| 011 | And |
| 100 | Or |
| 101 | Shift left |
| 110 | Shift right |

Memory functions (10)

|  |  |
| --- | --- |
| 000 | push |
| 001 | pop |
| 010 | Load imm |
| 011 | Load from memory |
| 100 | Store to memory |

Branch Function (11)

|  |  |
| --- | --- |
| 000 | Jump if z |
| 001 | Jump if n |
| 010 | Jump if c |
| 011 | jump |
| 100 | Call subroutine |
| 101 | Return from subroutine |
| 110 | Return from interrupt |