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| --- | --- | --- | --- | --- | --- |
| PC | Func | Instruction | Coding | Example | |
| PC ++ | Rx = Rx+imm | Init Rx, imm imm = [0:3] | 000 xx ii | Init R1, 1 | 0 000 01 01 |
| PC ++ | Rx = M[Ry] | Load Rx, Ry | 001 xx yy | Load R1, R2 | 1 001 01 10 |
| PC ++ | M[Ry] = Rx | Store Rx, Ry | 010 xx yy | Store R1, R2 | 1 010 01 10 |
| PC ++ | Rx = Rx + Ry | Add Rx, Ry | 011 xx yy | Add R1, R3 | 1 011 01 11 |
| PC ++ | Rx = Rx - Ry | Sub Rx, Ry | 100 xx yy | Sub R2, R0 | 1 100 11 00 |
| PC ++ | If Rx<Ry -> R0 = 1; else R0 = 0 | SLT Rx, Ry | 101 xx yy | SLT R0, R2 | 0 101 00 11 |
| PC ++ | Rx = Rx>>1 | Shl Rx | 110 00 xx | Shl R1 | 1 11000 01 |
| PC ++ | Rx = Rx <<1 | Shr Rx | 110 11 xx | Shr R3 | 0 11011 11 |
| PC ++ | Rx = Rx XOR Ry | XOR Rx, Ry | 110 01 yy | XOR R2, R1 | 0 11001 01 |
|  | If R0 = 1 -> PC = PC + Rx; PC = PC++ | Beq Rx | 110 10 xx | Beq R3 | 1 11010 11 |
| PC = PC + imm | PC = PC + Rx | J Rx | 111 00 xx | J R1 | 1 11110 01 |
| Stop |  | End | 1111111 |  |  |
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ISA Design: