|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| State  (Name) | PCWrite | MemWrite | IRWrite | RegWrite | ALUSrcA | Branch | IorD | MemtoReg | RegDst | ALUSrcB[1:0] | PCRsc[1:0] | ALUOp[1:0] | FSM Control Word |
| 0 (Fetch) | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 00 | 00 | 0x5010 |
| 1 (Decode) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 00 | 00 | 0x0030 |
| 2 (MemAdr) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 (MemRd) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 (MemWB) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 (MemWr) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 (RtypeEx) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 (RtypeWB) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 (BeqEx) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 (AddiEx) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 (AddiWB) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 (JEx) |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Table 4. Main Decoder Control output**