**باسمه تعالی**

**Control Unit**

**Control Signals**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **opcode** | **000** | **001** | **010** | **011** | **100** | **101** | **110** | **111** |
| **Instruction** | **Add(R)** | **Sub(R)** | **Beq(I)** | **And(R)** | **Lw(I)** | **Sw(I)** | **Addi(I)** | **Ori(I)** |
| **RegDst** | 1 | 1 | x(0) | 1 | 0 | x(0) | 0 | 0 |
| **RegWrite** | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| **MemToReg** | 0 | 0 | x(0) | 0 | 1 | x(0) | 0 | 0 |
| **MemWrite** | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| **MemRead** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| **ALUsrc** | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| **ExtOp** | x(0) | x(0) | x(0) | x(0) | 1 | 1 | 0 | 0 |
| **Branch** | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| **ALUop[1:0]** | **00** | **01** | **01** | **10** | **00** | **00** | **00** | **11** |
| **ALUctr** | **add** | **sub** | **sub** | **and** | **add** | **add** | **add** | **or** |

Mahdi Tavassoli

993 633 012