

Controlpath logic table

| instruction | type | jctrl | jalctrl | jrcrtl | beqctrl | sltctrl | ractrl | nextctrl | memwrite | memread | mentoreg | ALUop | ALUsrc | regwrite |
|-------------|------|-------|---------|--------|---------|---------|--------|----------|----------|---------|----------|-------|--------|----------|
| add         | R    | 0     | 0       | 0      | 0       | 00      | 0      | 00       | 0        | 0       | 00       | 000   | 0      | 1        |
| nand        | R    | 0     | 0       | 0      | 0       | 00      | 0      | 00       | 0        | 0       | 00       | 001   | 0      | 1        |
| slt_0       | R    | 0     | 0       | 0      | 0       | 10      | 0      | 00       | 0        | 0       | 00       | 010   | 0      | 1        |
| slt_1       | R    | 0     | 0       | 0      | 0       | 11      | 0      | 00       | 0        | 0       | 00       | 010   | 0      | 1        |
| sl          | R    | 0     | 0       | 0      | 0       | 00      | 0      | 00       | 0        | 0       | 00       | 011   | 0      | 1        |
| sr          | R    | 0     | 0       | 0      | 0       | 00      | 0      | 00       | 0        | 0       | 00       | 100   | 0      | 1        |
| lw          | I    | 0     | 0       | 0      | 0       | 00      | 0      | 01       | 0        | 1       | 01       | 111   | 1      | 1        |
| sw          | I    | 0     | 0       | 0      | 0       | 00      | 0      | 01       | 1        | 0       | 00       | 111   | 1      | 0        |
| addi        | I    | 0     | 0       | 0      | 0       | 00      | 0      | 00       | 0        | 0       | 00       | 100   | 1      | 1        |
| jr          | JR   | 0     | 0       | 1      | 0       | 00      | 1      | 00       | 0        | 0       | 00       | 000   | 0      | 0        |
| beq         | J    | 1     | 1       | 0      | 1       | 00      | 0      | 00       | 0        | 0       | 00       | 101   | 0      | 0        |
| jal         | J    | 0     | 1       | 0      | 0       | 00      | 0      | 10       | 0        | 0       | 10       | 000   | 0      | 0        |