**دانشگاه اصفهان-دانشکده مهندسی کامپیوتر**

**معماری کامپیوتر**

**استاد: دکتر بیکی**

**طراحی پردازندهMIPS**

**اعضای گروه:**

آرین جعفری

آمینا شجاعی

دی 1402

**ISA:**

|  |  |  |  |
| --- | --- | --- | --- |
| Instruction | Opcode | Format | Usage |
| Nor | 0010 | R | Nor $t0, $t1, $t2 |
| slt | 0101 | R | Slt $t0, $t1, $t2 |
| Sll | 0001 | I | Sll $t0, $t1, imm |
| Slti | 1000 | I | Slti $t0, $t1, imm |
| Jal | 1011 | J | Jal imm |
| And | 0111 | R | And $t0, $t1, $t2 |
| Mul | 1111 | R | Mul $t0, $t1, $t2 |
| andi | 0100 | I | Andi $t0, $t1, imm |

* R-type instructions: 4
* I-type instructions: 3
* J-type instructions: 1

**Instruction formats: All 16-bit wide**

1. R-type

|  |  |  |  |
| --- | --- | --- | --- |
| Op | rs | rt | rd |
| 4 | 4 | 4 | 4 |

1. I-type

|  |  |  |  |
| --- | --- | --- | --- |
| Op | rs | rt | imm |
| 4 | 4 | 4 | 4 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Op | 0000 | 0101 | 0001 | 0010 | 1011 | 0111 | 1111 | 0100 |
| instructions | Nor | Slt | sll | slti | andi | and | Mul | jal |
| Slt | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| ALUsrc | 0 | 0 | 1 | 1 | 1 | 0 | 0 | x |
| REGwrite | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| Jump | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| REGdst | 0 | 0 | 1 | 1 | 1 | 0 | 0 | x |
| $ra | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| ALUcnt | 01 | 10 | 00 | 10 | 00 | 00 | 11 | xx |