**레지스터 개수:8개**

($zero, $t0~$t2, $s0~$s3)

**레지스터 길이:2bytes**

**1 WORD의 크기:2bytes**

**명령어 Type**

**R-Type**

해당 명령어: add(사칙연산 더하기), sub(사칙연산 빼기), mul(사칙연산 곱하기), div(사칙연산 나누기)

**I-Type**

해당 명령어: addi(사칙연산 immediate 더하기), subi(사칙연산 immediate 빼기), muli(사칙연산 immediate 곱하기), divi(사칙연산 immediate 나누기), lw(메모리 불러오기), sw(메모리 저장), beq(== 비교),bne(!= 비교)

**J-Type**

해당 명령어:j(unconditional jump)

**명령어 Field**

**R-Type**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| op | rs | rt | rd | Funct |

4bit 3bit 3bit 3bit 3bit

총 16bit

**I-Type**

|  |  |  |  |
| --- | --- | --- | --- |
| op | rs | rt | const |

4bit 3bit 3bit 6bit

총 16bit

**J-Type**

|  |  |
| --- | --- |
| op | address |

4bit 12bit

총 16bit

**기계어 코드**

**R-Type**

**add reg3 #, reg1 #, reg2 #=>reg3 # = reg1 #+reg2 #**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0000 | Reg1 # | Reg2 # | Reg3 # | 000 |

**sub reg3 #, reg1 #, reg2 #=>reg3 # = reg1 #-reg2 #**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0000 | Reg1 # | Reg2 # | Reg3 # | 001 |

**mul reg3 #, reg1 #, reg2 #=>reg3 # = reg1 #\*reg2 #**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0000 | Reg1 # | Reg2 # | Reg3 # | 010 |

**div reg3 #, reg1 #, reg2 #=>reg3 # = reg1 #/reg2 #**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0000 | Reg1 # | Reg2 # | Reg3 # | 100 |

**I-Type**

**addi reg2 #, reg1 #, const => reg2 # = reg1 #+const**

|  |  |  |  |
| --- | --- | --- | --- |
| 0001 | Reg1 # | Reg2 # | Const |

**subi reg2 #, reg1 #, const => reg2 # = reg1 #-const**

|  |  |  |  |
| --- | --- | --- | --- |
| 0010 | Reg1 # | Reg2 # | Const |

**muli reg2 #, reg1 #, const => reg2 # = reg1 #\*const**

|  |  |  |  |
| --- | --- | --- | --- |
| 0011 | Reg1 # | Reg2 # | Const |

**divi reg2 #, reg1 #, const => reg2 # = reg1 #/const**

|  |  |  |  |
| --- | --- | --- | --- |
| 0100 | Reg1 # | Reg2 # | Const |

**lw reg1 #, const(reg2 #)=>const(reg2 #)이 가리키고 있는 메모리의 값을 reg1 #에 넣어라**

|  |  |  |  |
| --- | --- | --- | --- |
| 0101 | Reg1 # | Reg2 # | Const |

**sw reg1 #, const(reg2 #)=>const(reg2 #)이 가리키고 있는 메모리에 reg1 #의 값을 넣어라**

|  |  |  |  |
| --- | --- | --- | --- |
| 0110 | Reg1 # | Reg2 # | Const |

**beq reg1 #, reg2 #, L1=>reg1 #과 reg2 #이 같으면 L1으로 가라**

|  |  |  |  |
| --- | --- | --- | --- |
| 0111 | Reg1 # | Reg2 # | L1 |

**bne reg1 #, reg2 #, L1=>reg1 #과 reg2 #이 다르면 L1으로 가라**

|  |  |  |  |
| --- | --- | --- | --- |
| 1000 | Reg1 # | Reg2 # | L1 |

**J-Type**

**j L1=>L1으로 가라**

|  |  |
| --- | --- |
| 1001 | L1 |