Class Instruction Usage Meaning

Add add rs,rt rs ← (rs) + (rt)

Comp comp rs,rt rs ← 2’s Complement (rs)

Arithmetic Add immediate addi rs,imm rs ← (rs) + imm

Complement Immediate compi rs,imm rs ← 2’s Complement (imm)

Logic AND and rs,rt rs ← (rs) ∧ (rt)

XOR xor rs,rt rs ← (rs) ⊕ (rt)

Shift left logical shll rs, sh rs ← (rs) left-shifted by sh

Shift right logical shrl rs, sh rs ← (rs) right-shifted by sh

Shift Shift left logical variable shllv rs, rt rs ← (rs) left-shifted by (rt)

Shift right logical shrl rs, rt rs ← (rs) right-shifted by (rt)

Shift right arithmetic shra rs, sh rs ← (rs) arithmetic right-shifted by sh

Shift right arithmetic variable shrav rs, rt rs ← (rs) right-shifted by (rt)

Load Word lw rt,imm(rs) rt ← mem[(rs) + imm]

Memory Store Word sw rt,imm,(rs) mem[(rs) + imm] ← (rt)

Unconditional branch b L goto L

Branch Register br rs goto (rs)

Branch on less than 0 bltz rs,L if(rs) < 0 then goto L

Branch Branch on flag zero bz rs,L if (rs) = 0 then goto L

Branch on flag not zero bnz rs,L if(rs) ̸= 0 then goto L

Branch and link bl L goto L; 31 ← (PC)+4

Branch on Carry bcy L goto L if Carry = 1

Branch on No Carry bncy L goto L if Carry = 0

Complex Diff diff rs, rt rs ← the LSB bit at which rs and rt differ