| op(31:26) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 28–26<br>31–29 | 0(000) | 1(001) | 2(010) | 3(011) | 4(100) | 5(101) | 6(110) | 7(111) |
| 0(000) | R-format | Bltz/gez | jump | jump & link | branch eq | branch ne | blez | bgtz |
| 1(001) | add immediate | addiu | set less than imm. | set less than imm. unsigned | andi | ori | xori | load upper immediate |
| 2(010) | TLB | FlPt | | | | | | |
| 3(011) | | | | | | | | |
| 4(100) | load byte | load half | lwl | load word | load byte unsigned | load half unsigned | lwr | |
| 5(101) | store byte | store half | swl | store word | | | swr | |
| 6(110) | load linked word | lwc1 | | | | | | |
| 7(111) | store cond. word | swc1 | | | | | | |

| op(31:26)=010000 (TLB), rs(25:21) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 23–21<br>25–24 | 0(000) | 1(001) | 2(010) | 3(011) | 4(100) | 5(101) | 6(110) | 7(111) |
| 0(00) | mfc0 | | cfc0 | | mtc0 | | ctc0 | |
| 1(01) | | | | | | | | |
| 2(10) | | | | | | | | |
| 3(11) | | | | | | | | |

| op(31:26)=000000 (R-format), funct(5:0) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2–0<br>5–3 | 0(000) | 1(001) | 2(010) | 3(011) | 4(100) | 5(101) | 6(110) | 7(111) |
| 0(000) | shift left logical | | shift right logical | sra | sllv | | srlv | srav |
| 1(001) | jump register | jalr | | | syscall | break | | |
| 2(010) | mfhi | mthi | mflo | mtlo | | | | |
| 3(011) | mult | multu | div | divu | | | | |
| 4(100) | add | addu | subtract | subu | and | or | xor | not or (nor) |
| 5(101) | | | set l.t. | set l.t. unsigned | | | | |
| 6(110) | | | | | | | | |
| 7(111) | | | | | | | | |

FIGURE 2.19 MIPS instruction encoding. This notation gives the value of a field by row and by column. For example, the top portion of the figure shows load word in row number 4 ($100_{two}$ for bits 31–29 of the instruction) and column number 3 ($011_{two}$ for bits 28–26 of the instruction), so the corresponding value of the op field (bits 31–26) is $100011_{two}$. Underscore means the field is used elsewhere. For example, R-format in row 0 and column 0 (op 5 $000000_{two}$) is defined in the bottom part of the figure. Hence, subtract in row 4 and column 2 of the bottom section means that the funct field (bits 5–0) of the instruction is $100010_{two}$ and