

| Instruction | 31          | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20    | 19 | 18 | 17 | 16 | 15        | 14 | 13 | 12 | 11 | 10    | 9  | 8 | 7 | 6 | 5      | 4   | 3 | 2 | 1 | 0 |
|-------------|-------------|----|----|----|----|----|----|----|----|----|----|-------|----|----|----|----|-----------|----|----|----|----|-------|----|---|---|---|--------|-----|---|---|---|---|
|             | Opcode      |    |    |    |    |    | RS |    |    |    |    | RT    |    |    |    |    | RD        |    |    |    |    | Shamt |    |   |   |   | Func   |     |   |   |   |   |
| add         | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 100000 |     |   |   |   |   |
| addi        | 1000        |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | Immediate |    |    |    |    |       |    |   |   |   |        |     |   |   |   |   |
| addiu       | 1001        |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | Immediate |    |    |    |    |       |    |   |   |   |        |     |   |   |   |   |
| addu        | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 100001 |     |   |   |   |   |
| sub         | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 100010 |     |   |   |   |   |
| subu        | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 100011 |     |   |   |   |   |
| div         | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | 0         |    |    |    |    |       |    |   |   |   | 11010  |     |   |   |   |   |
| divu        | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | 0         |    |    |    |    |       |    |   |   |   | 11011  |     |   |   |   |   |
| mult        | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | 0         |    |    |    |    |       |    |   |   |   | 11000  |     |   |   |   |   |
| multu       | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | 0         |    |    |    |    |       |    |   |   |   | 11001  |     |   |   |   |   |
| mfhi        | SPECIAL = 0 |    |    |    |    |    | 0  |    |    |    |    |       |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 10000  |     |   |   |   |   |
| mflo        | SPECIAL = 0 |    |    |    |    |    | 0  |    |    |    |    |       |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 10010  |     |   |   |   |   |
| mthi        | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | 0     |    |    |    |    |           |    |    |    |    |       |    |   |   |   | 10001  |     |   |   |   |   |
| mtlo        | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | 0     |    |    |    |    |           |    |    |    |    |       |    |   |   |   | 10011  |     |   |   |   |   |
| and         | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 100100 |     |   |   |   |   |
| andi        | 1100        |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | Immediate |    |    |    |    |       |    |   |   |   |        |     |   |   |   |   |
| xor         | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 100110 |     |   |   |   |   |
| xori        | 1110        |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | Immediate |    |    |    |    |       |    |   |   |   |        |     |   |   |   |   |
| nor         | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 100111 |     |   |   |   |   |
| or          | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 100101 |     |   |   |   |   |
| ori         | 1101        |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | Immediate |    |    |    |    |       |    |   |   |   |        |     |   |   |   |   |
| sll         | SPECIAL = 0 |    |    |    |    |    | 0  |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | sa    |    |   |   |   | 0      |     |   |   |   |   |
| sllv        | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 100    |     |   |   |   |   |
| slt         | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 101010 |     |   |   |   |   |
| slti        | 1010        |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | Immediate |    |    |    |    |       |    |   |   |   |        |     |   |   |   |   |
| sltiu       | 1011        |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | Immediate |    |    |    |    |       |    |   |   |   |        |     |   |   |   |   |
| sltu        | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 101011 |     |   |   |   |   |
| sra         | SPECIAL = 0 |    |    |    |    |    | 0  |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | sa    |    |   |   |   | 11     |     |   |   |   |   |
| srav        | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | 111    |     |   |   |   |   |
| srl         | SPECIAL = 0 |    |    |    |    |    | 0  |    |    |    |    | R (0) | rt |    |    |    |           | rd |    |    |    |       | sa |   |   |   |        | 10  |   |   |   |   |
| srlv        | SPECIAL = 0 |    |    |    |    |    | RS |    |    |    |    | rt    |    |    |    |    | rd        |    |    |    |    | 0     |    |   |   |   | R (0)  | 110 |   |   |   |   |

|        | Opcode     | RS | RT    | RD     | Shamt | Func |
|--------|------------|----|-------|--------|-------|------|
| beq    | 100        | RS | rt    | offset |       |      |
| beql   | 10100      | RS | rt    | offset |       |      |
| bgez   | REGIMM = 1 | RS | 1     | offset |       |      |
| bgezal | REGIMM = 1 | RS | 10001 | offset |       |      |
| bgtz   | 111        | RS | 0     | offset |       |      |
| blez   | 110        | RS | 0     | offset |       |      |
| blezl  | 10110      | RS | 0     | offset |       |      |
| bltz   | REGIMM = 1 | RS | 0     | offset |       |      |
| bltzal | REGIMM = 1 | RS | 10000 | offset |       |      |
| bne    | 101        | RS | rt    | offset |       |      |
| bnel   | 10101      | RS | rt    | offset |       |      |

|      | Opcode      | RS          | RT | RD   | Shamt | Func |
|------|-------------|-------------|----|------|-------|------|
| j    | 10          | instr_index |    |      |       |      |
| jal  | 11          | instr_index |    |      |       |      |
| jalr | SPECIAL = 0 | RS          | 0  | rd   | hint  | 1001 |
| jr   | SPECIAL = 0 | RS          | 0  | hint |       | 1000 |

|     | Opcode | RS   | RT | RD        | Shamt | Func |
|-----|--------|------|----|-----------|-------|------|
| LB  | 100000 | base | rt | offset    |       |      |
| LBU | 100100 | base | rt | offset    |       |      |
| LH  | 100001 | base | rt | offset    |       |      |
| LHU | 100101 | base | rt | offset    |       |      |
| LUI | 1111   | 0    | rt | immediate |       |      |
| LW  | 100011 | base | rt | offset    |       |      |
| LWL | 100010 | base | rt | offset    |       |      |
| LWR | 100110 | base | rt | offset    |       |      |
| SB  | 101000 | base | rt | offset    |       |      |
| SH  | 101001 | base | rt | offset    |       |      |
| SW  | 101011 | base | rt | offset    |       |      |
| SWL | 101010 | base | rt | offset    |       |      |
| SWR | 101110 | base | rt | offset    |       |      |

Syscall  
NOP

|             |    |    |    |       |      |
|-------------|----|----|----|-------|------|
|             |    |    |    |       |      |
| Opcode      | RS | RT | RD | Shamt | Func |
| 0           |    |    |    |       | 1100 |
| SPECIAL = 0 | 0  | 0  | 0  | 0     | 0    |