

## The LC-3 Instruction Set Summary

|      | 15   | 14 | 13 | 12 | 11 | 10         | 9 | 8         | 7  | 6 | 5       | 4    | 3 | 2   | 1 | 0 |  |
|------|------|----|----|----|----|------------|---|-----------|--|---|---------|------|---|-----|---|---|--|
| ADD* | 0001 |    |    |    | DR |            |   | SR1       |  |   | 0       | 0    | 0 | SR2 |   |   |  |
| ADD* | 0001 |    |    |    | DR |            |   | SR1       |  |   | 1       | imm5 |   |     |   |   |  |
| AND* | 0101 |    |    |    | DR |            |   | SR1       |  |   | 0       | 0    | 0 | SR2 |   |   |  |
| AND* | 0101 |    |    |    | DR |            |   | SR1       |  |   | 1       | imm5 |   |     |   |   |  |
| BR   | 0000 |    |    |    | n  | z          | p | PCoffset9 |  |   |         |      |   |     |   |   |  |
| JMP  | 1100 |    |    |    | 0  | 0          | 0 | BaseR     |  |   | 0       | 0    | 0 | 0   | 0 | 0 |  |
| JSR  | 0100 |    |    |    | 1  | PCoffset11 |   |           |  |   |         |      |   |     |   |   |  |
| JSRR | 0100 |    |    |    | 0  | 0          | 0 | BaseR     |  |   | 0       | 0    | 0 | 0   | 0 | 0 |  |
| LD*  | 0010 |    |    |    | DR |            |   | PCoffset9 |  |   |         |      |   |     |   |   |  |
| LDI* | 1010 |    |    |    | DR |            |   | PCoffset9 |  |   |         |      |   |     |   |   |  |
| LDR* | 0110 |    |    |    | DR |            |   | BaseR     |  |   | offset6 |      |   |     |   |   |  |
| LEA* | 1110 |    |    |    | DR |            |   | PCoffset9 |  |   |         |      |   |     |   |   |  |
| NOT* | 1001 |    |    |    | DR |            |   | SR        |  |   | 1       | 1    | 1 | 1   | 1 | 1 |  |
| RET  | 1100 |    |    |    | 0  | 0          | 0 | 1         | 1  | 1 | 0       | 0    | 0 | 0   | 0 | 0 |  |
| RTI  | 1000 |    |    |    | 0  | 0          | 0 | 0         | 0  | 0 | 0       | 0    | 0 | 0   | 0 | 0 |  |
| ST   | 0011 |    |    |    | SR |            |   | PCoffset9 |  |   |         |      |   |     |   |   |  |
| STI  | 1011 |    |    |    | SR |            |   | PCoffset9 |  |   |         |      |   |     |   |   |  |
| STR  | 0111 |    |    |    | SR |            |   | BaseR     |  |   | offset6 |      |   |     |   |   |  |
| TRAP | 1111 |    |    |    | 0  | 0          | 0 | 0         | trapvect8<br>x20 = GetC<br>x21 = Out<br>x22 = PutS<br>x23 = In<br>x25 = Halt |   |         |      |   |     |   |   |  |

Note: \* indicates instructions that modify the condition codes.