Lab 5 Assembly Manual (User Guide)

All of 6 jumps, load and store assembly instructions are finished in this lab. For use. it is shown as below.

The manipulation instructions are executed by instruction commands such as add, followed by Ri and Rj.

For example: add R3, R4

sub R3, R9

cpy R2, R10

The jump instructions are utilized as follow.

Jump command Ri label with any number

For example: JU R3 label1

JU, JC1, JV1, JN1, JZ1, JC0, JV0, JN0, and JZ0 are the jump commands that can be used in assembly. Label followed by any number is used to do direct addressing mode jump. The jump can be forward or backward. Label1 will be placed in any other memory address place. The label placing example is provided as below.

Label1: addc R1,#0010

The load and store has three addressing modes: direct, indirect and indexed addressing modes. The CPU takes cares of all addressing modes depending when Ri =0, the memory address offset = 0, or both of Ri and memory address offset are non-zeros. They are implemented as:

St Ri, Rj, # number

Ld Ri, Rj, # number

The number has to be binary bits to continue the process. The number is the memory address offset. The architecture is 14 bits. Even if the user doesn’t provide the 14 bits, the assembler will fill the remaining most significant bits with zeros. For store values at Rj memory address location will stored into memory whereas load will transfer the value from memory to Rj memory address location. The following examples provide how to program the load and store commands.

St R3, R2, #001100

Ld R5,R2, #010110