

Given the following RISC-V instruction and register / data memory values, perform the following tasks. First, translate the given RISC-V instruction to its binary encoding. Second, show the propagation of signals through the reduced Single-Cycle datapath that calculate the result of the instruction. You are permitted and encouraged to refer to the RISC-V Green sheet while completing the problem. The values of the registers / memory are the values at the beginning of the instruction.

- PC: 0x7ffff100
- Instruction: add x18, x19, x20
- Register x18 contains 0x0000002A
- Register x19 contains 0x00000014
- Register x20 contains 0x00000007

RISC-V Encoding:

0000000 | 10100 | 10011 | 000 | 10010 | 0110011

Single-Cycle Datapath data propagation:

