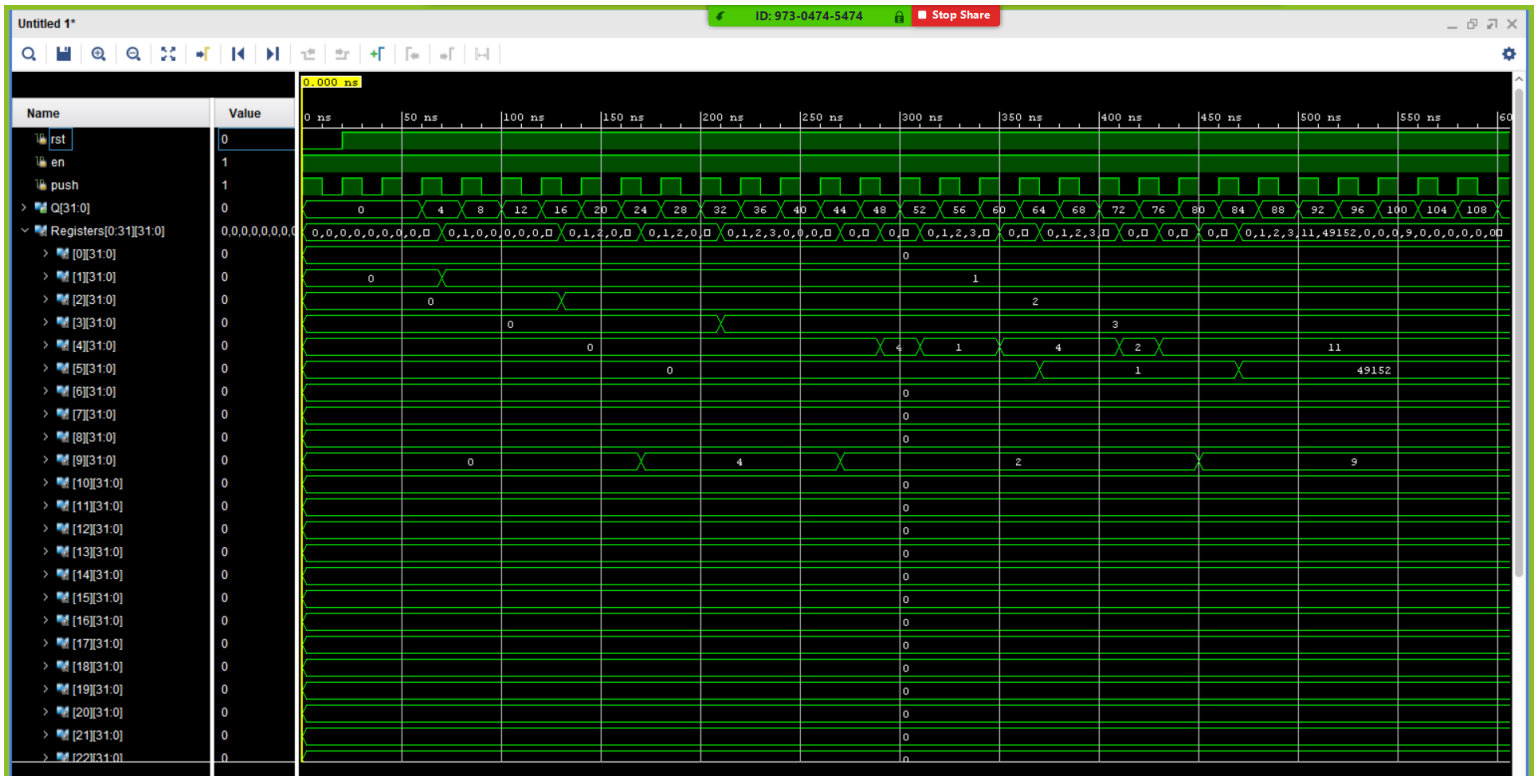
Instructions:

1. lb x1,300(x0)
2. sb x1,310(x0)
3. lh x2,301(x0)
4. lbu x8,302(x0)
5. lhu x9,303(x0)
6. sh x2,311(x0)
7. addi x3,x2,1
8. slti x10,x2,1
9. sltiu x10,x3,-2
10. andi x9,x2,2
11. slli x4,x2,1
12. srli x4,x2,1
13. srai x4,x2,1
14. sll x4, x2, x1
15. srl x5,x2,x1
16. sra x5,x2,x1
17. ori x4,x2,2
18. xori x4,x3,8
19. xor x9,x2,x4
20. lui x5,12
21. slt x10,x3,x2
22. sltu x10,x2,x2
23. bne x3,x2,b1
24. b1: blt x2,x3,b2
25. b2: bge x3,x2,b3
26. b3: bltu x2,x3,b4
27. b4: bgeu x3,x2,b5
28. b5: auipc x6,0
29. addi x1,x1,1
30. beq x1,x1,br
31. br: lw x1, 305(x0)
32. sw x1, 320(x0)
33. add x1,x1,x0
34. sll x1,x1,x1
35. sub x1,x0,x1
36. srl x1,x1,x1
37. or x1,x1,x0
38. and x1,x1,x0
39. jal x8, 2
40. ecall
41. CSR
42. FENCE
43. Beq x2, x2, 4
44. Nop
45. nop
46. jalr x7, x0, 188
47. nop
48. lb x1,300(x0)
49. beq x1,x1,4
50. nop
51. Ebreak

After encoding:

1. 83 00 C0 12
2. 23 0B 10 12
3. 03 11 D0 12
4. 03 44 E0 12
5. 83 54 F0 12
6. A3 1B 20 12
7. 93 01 11 00
8. 13 25 11 00
9. 13 B5 21 00
10. 93 74 21 00
11. 13 12 11 00
12. 13 52 11 00
13. 13 52 11 40
14. 33 12 11 00
15. b3 52 11 00
16. b3 52 11 40
17. 13 62 21 00
18. 13 c2 81 00
19. b3 44 41 00
20. b7 C2 00 00
21. 33 a5 21 00
22. 33 35 21 00
23. 63 92 21 00
24. 63 42 31 00
25. 63 d2 21 00
26. 63 62 31 00
27. 63 f2 21 00
28. 17 23 00 00
29. 93 80 10 00
30. 63 82 10 00
31. 83 20 10 13
32. 23 20 10 14
33. B3 00 10 00
34. B3 90 10 00
35. B3 00 10 40
36. b3 d0 10 00
37. B3 E0 00 00
38. b3 f0 00 00
39. 6F 04 40 00
40. 73 00 00 00
41. 73 00 00 00
42. 0F 10 00 00
43. 63 04 21 00
44. 33 00 00 00
45. 33 00 00 00
46. E7 03 C0 0B
47. 33 00 00 00
48. 83 00 C0 12
49. 63 84 10 00
50. 33 00 00 00
51. 73 00 10 00

Waveforms


Untitled 1*
ID: 973-0474-5474
Stop Share
Name
Value
rst
en
push
Q[31:0]
Registers[0:31][31:0]
0.000 ns
0 ns
50 ns
100 ns
150 ns
200 ns
250 ns
300 ns
350 ns
400 ns
450 ns
500 ns
550 ns


Untitled 1*
ID: 973-0474-5474
Stop Share
Name
Value
rst
en
push
Q[31:0]
Registers[0:31][31:0]
600 ns
650 ns
700 ns
750 ns
800 ns
850 ns
900 ns
950 ns
1,000 ns
1,050 ns
1,100 ns
1,150 ns

```
    initial begin
    $readmemh("test.mem",mem);
    //data
    mem[300] = 8'b00000001;
    mem[301] = 8'b00000010;
    mem[302] = 8'b00000000;
    mem[303] = 8'b00000100;
    mem[304] = 8'b00000000;
    mem[305] = 8'b00000101;
    mem[306] = 8'b00000000;
    mem[307] = 8'b00000000;
    mem[308] = 8'b00000000;
end
```