**Trasarea execuției programului de test pentru MIPS32**

Valorile se completează în hexazecimal așa cum trebuie să apară pe SSD. Succesiunea pașilor reprezintă ordinea de execuție în timp la apăsarea butonului ENable. **Pasul 0 corespunde stării inițiale a circuitului (PC = 0), iar** **pasul *N* caracterizează starea după apăsarea de *N* ori a butonului ENable**. Inițial registrele vor avea valoarea 0 (care se atribuie automat în lipsa unei inițializări explicite a RF), iar memoria de date RAM poate fi inițializată cu valori dorite. Tabelul se completează pentru tot programul sau, dacă are buclă, până la finalul primei iterații. *Buclă = revenirea execuției la o instrucțiune care a mai fost executată anterior.*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pas** | **SW(7:5)** | "000" | "001" | "010" | "011" | "100" | "101" | "110" | "111" | **De completat numai pentru instrucțiuni de salt** | |
| **Instr** (*în asamblare*) | **Instr** (*hexa*) | **PC+4** | **RD1** | **RD2** | **Ext\_Imm** | **ALURes** | **MemData** | **WD** | **BranchAddr** | **JumpAddr** |
| 0 | xor $10, $10, $10 | X"014A5026" | X"00000001" | X"0000010" | X"0000010" | X"00005026" | X"0000000" | X"0000014" | X"0000000" | X"0000000" | X"0000000" |
| 1 | xor $0, $0, $0 | X"00000026" | X"00000002" | X"0000000" | X"0000000" | X"0000026" | X"0000000" | X"0000014" | X"0000000" |  |  |
| 2 | xor $30, $30, $30 | X"03DEF026" | X"00000003" | X"0000030" | X"0000030" | X"0000F026" | X"0000000" | X"0000014" | X"0000000" |  |  |
| 3 | lw $1, offset($10) | X"8D410000" | X"00000004" | X"0000000" | X"0000001" | X"0000000" | X"0000000" | X"0000014" | X"0000014" |  |  |
| 4 | addi $10, $10, 4 | X"214A0004" | X"00000005" | X"0000000" | X"0000000" | X"0000004" | X"0000004" | X"0000024" | X"0000004" |  |  |
| 5 | lw $2, offset($10) | X"8D420000" | X"00000006" | X"0000004" | X"0000002" | X"0000000" | X"0000004" | X"0000024" | X"0000024" |  |  |
| 6 | addi $0, $0, 8 | X"20000008" | X"00000007" | X"0000000" | X"0000000" | X"0000008" | X"0000008" | X"0000000" | X"0000008" |  |  |
| 7 | beq $1, $30, offset 13 | X"103E000D" | X"00000008" | X"0000014" | X"0000000" | X"000000d" | X"0000014" | X"0000000" | X"0000014" | X"0000015" |  |
| 8 | beq $2, $30 offset 10 | X"105E000A" | X"00000009" | X"0000024" | X"0000000" | X"000000A" | X"0000024" | X"0000000" | X"0000024" | X"0000013" |  |
| 9 | sw $1 offset($0) | X"AC010000" | X"0000000A" | X"0000008" | X"0000014" | X"0000000" | X"0000008" | X"0000000" | X"0000008" |  |  |
| 10 | addi $0, $0, 4 | X"20000004" | X"0000000b" | X"0000008" | X"0000008" | X"0000004" | X"000000C" | X"0000000" | X"000000C" |  |  |
| 11 | sw $2 offset($0) | X"AC020000" | X"0000000C" | X"000000C" | X"0000024" | X"0000000" | X"000000C" | X"0000000" | X"000000C" |  |  |
| 12 | addi $0, $0, 4 | X"20000004" | X"0000000d" | X"000000C" | X"000000C" | X"0000004" | X"0000010" | X"0000000" | X"0000010" |  |  |
| 13 | sub $3, $1, $2 | X"00221822" | X"0000000E" | X"0000014" | X"0000024" | X"00001822" | X"FFFFFFF0" | X"0000000" | X"FFFFFFF0" |  |  |
| 14 | bgtz $3, offset 2 | X"1C600002" | X"0000000F" | X"FFFFFFF0" | X"0000010" | X"00000002" | X"FFFFFFF0" | X"0000000" | X"FFFFFFF0" | X"0000011" |  |
| 15 | sub $2, $2, $1 | X"00411022" | X"00000010" | X"0000024" | X"0000014" | X"00001022" | X"0000010" | X"0000000" | X"0000010" |  |  |
| 16 | j addr 8 | X"08000008" | X"00000011" | X"0000010" | X"0000010" | X"0000008" | X"0000000" | X"0000014" | X"0000000" |  | X"0000008" |
| 17 | sub $1, $1, $2 | X"00220822" | X"00000012" | X"0000014" | X"0000010" | X"0000822" | X"0000004" | X"0000024" | X"0000004" |  |  |
| 18 | j addr 8 | X"08000008" | X"00000013" | X"0000018" | X"0000018" | X"0000008" | X"0000000" | X"0000014" | X"0000000" |  | X"0000008" |
| 19 | sw $1 offset($0) | X"AC010000" | X"00000014" | X"0000038" | X"0000004" | X"0000000" | X"0000038" | X"0000000" | X"0000038" |  |  |
| 20 | j addr 22 | X"08000015" | X"00000015" | X"0000038" | X"0000038" | X"0000000" | X"0000016" | X"0000014" | X"0000000" |  | X"0000016" |
| 21 | sw $2 offset($0) | X"AC020000" | X"00000016" | X"0000038" | X"0000004" | X"0000000" | X"0000038" | X"0000000" | X"0000038" |  |  |

Exemplu a = 20, b = 36