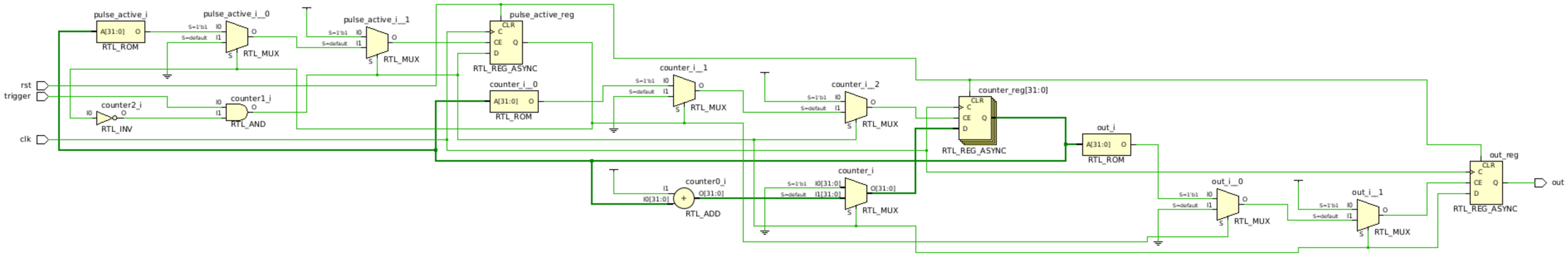
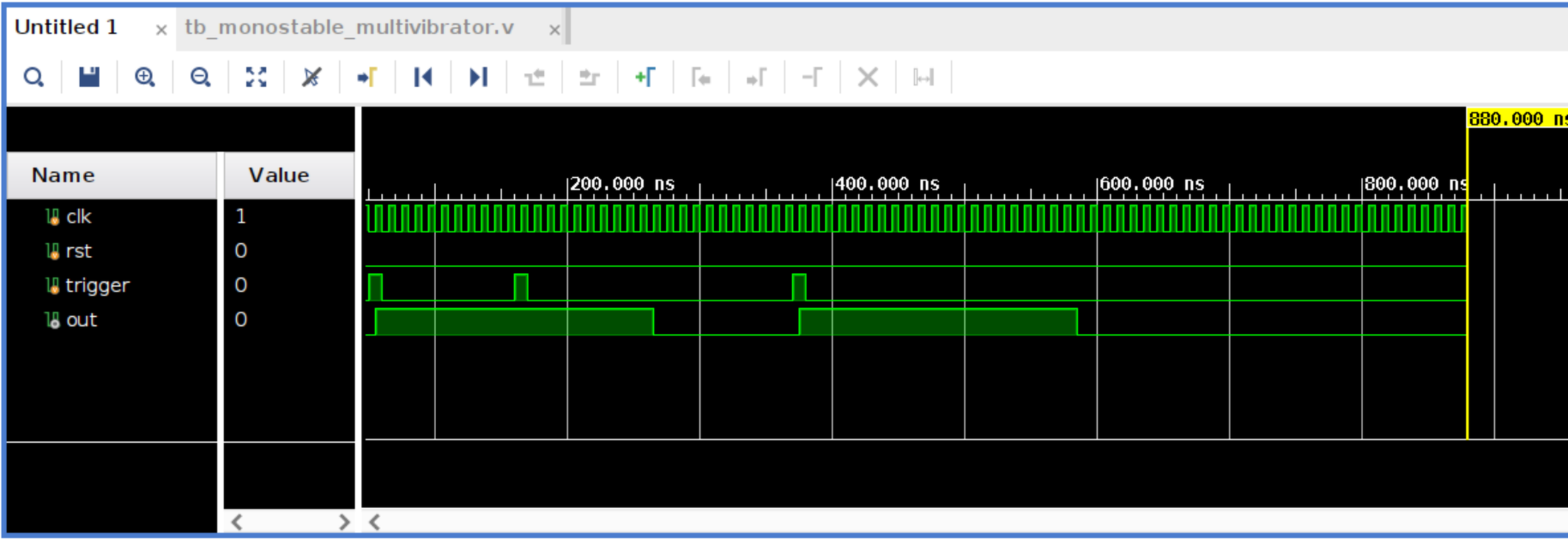
Schematic

47 Cells 4 I/O Ports 114 Nets



Untitled 1 × tb_monostable_multivibrator.v ×



Tcl Console × Messages Log

```
# run 1000ns
Time = 0 | Reset = 1 | Trigger = 0 | Output = 0
Time = 20000 | Reset = 0 | Trigger = 0 | Output = 0
Time = 50000 | Reset = 0 | Trigger = 1 | Output = 0
Time = 55000 | Reset = 0 | Trigger = 1 | Output = 1
Time = 60000 | Reset = 0 | Trigger = 0 | Output = 1
Time = 160000 | Reset = 0 | Trigger = 1 | Output = 1
Time = 170000 | Reset = 0 | Trigger = 0 | Output = 1
Time = 265000 | Reset = 0 | Trigger = 0 | Output = 0
Time = 370000 | Reset = 0 | Trigger = 1 | Output = 0
Time = 375000 | Reset = 0 | Trigger = 1 | Output = 1
Time = 380000 | Reset = 0 | Trigger = 0 | Output = 1
Time = 585000 | Reset = 0 | Trigger = 0 | Output = 0
$finish called at time : 880 ns : File "/home/itzzinfinity/Cozy Drive/100daysofRTL/day_040/ZZ MonoStableMV/ZZ MonoStableMV.srcs/
INFO: [USF-XSim-96] XSim completed. Design snapshot 'tb_monostable_multivibrator_behav' loaded.
INFO: [USF-XSim-97] XSim simulation ran for 1000ns
launch_simulation: Time (s): cpu = 00:00:08 ; elapsed = 00:00:07 . Memory (MB): peak = 8812.223 ; gain = 71.621 ; free physical
```

Type a Tcl command here

tb_monostable_multivibrator.v

/home/itzzinfinity/Cozy Drive/100daysofRTL/day_040/ZZ MonoStableMV/ZZ MonoStableMV.srcs/sim_1/new/tb_monostable_multivibrator.v

```
1   `timescale 1ns / 1ps
2   //////////////////////////////////////////////////////////////////////////////////
3   // Engineer: Anjan Prasad
4   // Create Date: 10/31/2024 08:14:07 AM
5   // Module Name: tb_monostable_multivibrator
6   //////////////////////////////////////////////////////////////////////////////////
7
8   module tb_monostable_multivibrator;
9
10      reg clk;            // Clock signal
11      reg rst;            // Reset signal
12      reg trigger;        // Trigger input
13      wire out;           // Output pulse
14
15      monostable_multivibrator UUT (.clk(clk),.rst(rst),.trigger(trigger),.out(out));
16
17      always #5 clk = ~clk;
18
19      initial begin
20          // Initialize all signals
21          clk = 0;
22          rst = 1;
23          trigger = 0;
24
25          #20 rst = 0;
26
27          #30 trigger = 1;  // Trigger pulse starts at 30ns
28          #10 trigger = 0;  // Stop trigger after 10ns
29
30          #100 trigger = 1;  // Trigger again at 130ns
31          #10 trigger = 0;   // Stop trigger after 10ns
32
33          #200 trigger = 1;  // Trigger again at 340ns
34          #10 trigger = 0;   // Stop trigger after 10ns
35
36          // End the simulation after sufficient time
37          #500 $finish;
38      end
39      initial begin
40          $monitor("Time = %0t | Reset = %b | Trigger = %b | Output = %b", $time, rst, trigger, out);
41      end
42
43  endmodule
44
45
```

Project Summary | monostable_multivibrator.v

/home/itzzinfinity/Cozy Drive/100daysofRTL/day_040/ZZ MonoStableMV/ZZ MonoStableMV.srcs/sources_1/new/monostable_multivibrator.v

```
1  `timescale 1ns / 1ps
2  //////////////////////////////////////////////////////////////////////////////////
3  // Engineer: Anjan Prasad
4  // Create Date: 10/31/2024 08:08:42 AM
5  // Module Name: monostable_multivibrator
6  //////////////////////////////////////////////////////////////////////////////////
7
8
9  module monostable_multivibrator(
10     input clk,          // Clock signal
11     input rst,          // Reset signal
12     input trigger,      // Trigger input
13     output reg out      // Output pulse
14 );
15     reg [31:0] counter;  // Counter for pulse duration
16     reg pulse_active;    // Flag to check if the pulse is active
17
18     always @(posedge clk or posedge rst) begin
19         if (rst) begin
20             counter <= 0;
21             out <= 0;
22             pulse_active <= 0;
23         end
24         else if (trigger && !pulse_active) begin
25             pulse_active <= 1;
26             counter <= 0;
27             out <= 1;
28         end
29         else if (pulse_active) begin
30             if (counter == 20) begin   // Duration of the pulse
31                 pulse_active <= 0;
32                 out <= 0;
33             end
34             else begin
35                 counter <= counter + 1;
36             end
37         end
38     end
39 endmodule
```