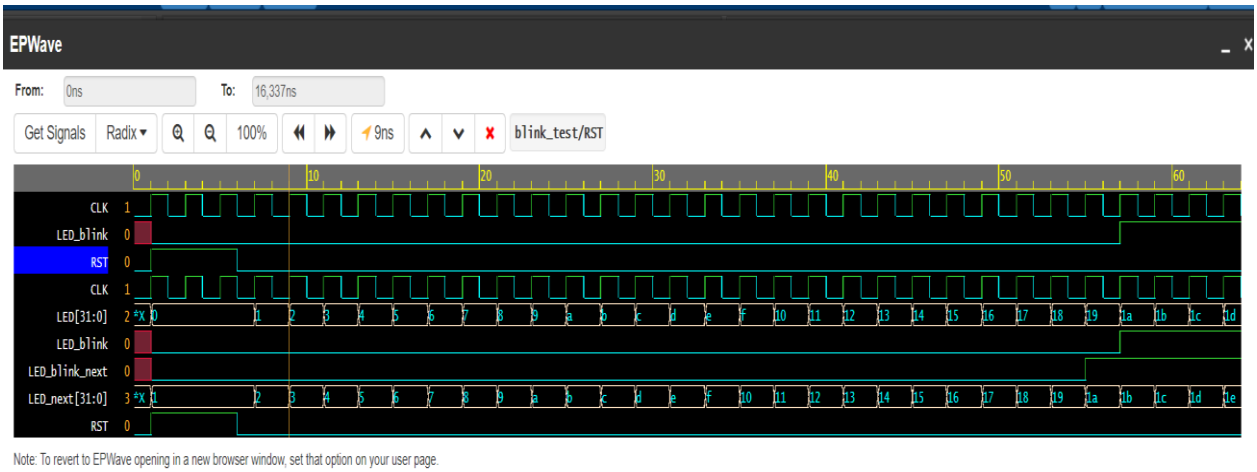
COUNTER

WAVE DIAGRAM



EDA PLAYGROUND LİNK:

https://edaplayground.com/x/piJq

ALSO CODE:

```
// Code design
//Counter for every second
module blink (CLK, RST, LED_blink, RST_OUT);

  input CLK, RST ;
  output reg LED_blink;
  output RST_OUT;
 reg LED_blink_next;
 reg [31:0]LED, LED_next;

 always @(*) begin
   LED_next = LED + 'b1;
  LED_blink_next = LED_blink;
  if (LED < 'd25000000) begin     // if the value were   'd200000000 instead , it would count every 4 second
    LED_blink_next=1'b0;  // next value off
  end
  else begin
    LED_blink_next=1'b1; //next value on
  end
  if (LED == 'd49999999) begin   // if the value were    'd249999999 instead , it would count every 4 second
    LED_next='d0;
  end
  end
```

COUNTER

```
  always @(posedge CLK or posedge RST) begin
     if (RST) begin
        LED <= 'b000000;
            LED_blink<=1'b0;  // Led blink off
      end
     else begin
        LED <= LED_next;
      LED_blink<=LED_blink_next; // keep the next value for blink
      end
    end

                          assign RST_OUT=RST;
endmodule
```

TESTBENCH

```
// Code testbench here
module blink_test;
  reg CLK;
  reg RST;
  wire LED_blink;

  initial begin
    RST = 0;
    #1 RST = 1;
    #5 RST = 0;
    #50;
  end

  initial
  begin
        CLK = 0;
   forever
    #1 CLK=~CLK;
  end



 initial begin
```

```
    $dumpvars(0, blink_test);
    $dumpfile("test.vcd");
  end

  initial begin
    #100000 $finish();
  end

blink dut (

    .RST         (RST),
    .CLK      (CLK),

  .LED_blink      (LED_blink)
);

endmodule
```