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timescale 1ns / 1ps
/*****
*
* Module: Stopwatch
*
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* Class: ECEN 220, Section 3, Fall 2020 - ECEN 220, Section 1, Winter 2020
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*
* Description: Creates a stopwatch that counts up to 59.99 seconds.
*
*****/
`default_nettype none

module Stopwatch(
    input wire logic clk, reset, run,
    output logic [3:0] digit0, digit1, digit2, digit3
);
    logic inc1, inc2, inc3, inc4, inc5;
    logic [19:0] counter;
    mod_counter #(1000000, 20) MC0 (.count(counter), .rolling_over(inc1), .clk(clk),
.reset(reset), .increment(run));
    mod_counter MC1 (.count(digit0), .rolling_over(inc2), .clk(clk), .reset(reset),
.increment(inc1));
    mod_counter MC2 (.count(digit1), .rolling_over(inc3), .clk(clk), .reset(reset),
.increment(inc2));
    mod_counter MC3 (.count(digit2), .rolling_over(inc4), .clk(clk), .reset(reset),
.increment(inc3));
    mod_counter #(6, 4) MC4(.count(digit3), .rolling_over(inc5), .clk(clk),
.reset(reset), .increment(inc4));

endmodule

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