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1  // Verilog code for digital counter/decrementer
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4
5  module dig_counter(RESETL,PRESETL,LOAD_ENA,UP,DATA_IN,CLK,COUNT);
6
7  input  [3:0]  DATA_IN;
8  input  RESETL,PRESETL,LOAD_ENA,UP,CLK;
9  output [3:0]  COUNT;
10 reg      [3:0]  COUNT;
11
12 always @(RESETL or PRESETL or posedge CLK)
13 begin
14     if (~RESETL)                COUNT <= 4'b0000;
15
16     else if (~PRESETL)          COUNT <= 4'b1111;
17
18     else if (UP) begin
19         if (COUNT == 15) begin
20             COUNT <= 0;
21             COUNT <= (COUNT + 1);
22         end
23     else COUNT <= (COUNT + 1);
24     end
25
26     else if (~UP) begin
27         if (COUNT == 0) begin
28             COUNT <= 15;
29             COUNT <= (COUNT - 1);
30         end
31     else COUNT <= (COUNT - 1);
32     end
33     else if (LOAD_ENA)  COUNT <= DATA_IN;
34 end
35 endmodule

```