Build a 4-digit BCD (binary-coded decimal) counter. Each decimal digit is encoded using 4 bits: q[3:0] is the ones digit, q[7:4] is the tens digit, etc. For digits [3:1], also output an enable signal indicating when each of the upper three digits should be incremented.

You may want to instantiate or modify some one-digit [decade counters](http://verilog.stuffedcow.net/wiki/Count10).

clk