```
module display (clk, z, HEX0, HEX1, HEX2, HEX3, HEX4, HEX5);

   output logic [6:0] HEX0, HEX1, HEX2, HEX3, HEX4, HEX5;
   input logic [4:0] z;
   input logic clk;

   logic [6:0] E, M, P, t, y, F, U, L, one, two, three, four, five, six, seven, eight, nine,
 zero, n;

   assign E = 7'b0000110;
   assign M = 7'b0010101;
   assign P = 7'b0001100;
   assign t = 7'b0000111;
   assign y = 7'b0010001;
   assign F = 7'b0001110;
   assign U = 7'b1000001;
   assign L = 7'b1000111;
   assign one = ~7'b0000110;
   assign two = ~7'b1011011;
   assign three = ~7'b1001111;
   assign four = ~7'b1100110;
   assign five = ~7'b1101101;
   assign six  = ~7'b1111101;
   assign seven = ~7'b0000111;
   assign eight = ~7'b1111111;
   assign nine = ~7'b1101111;
   assign zero = ~7'b0111111;
   assign n = 7'b1111111;

   always_comb begin
      case (z)
         5'b00000: begin
            HEX5 = E; HEX4 = M; HEX3 = P; HEX2 = t; HEX1 = y; HEX0 = zero;
         end
         5'b00001: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = zero; HEX0 = one;
         end
         5'b00010: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = zero; HEX0 = two;
         end
         5'b00011: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = zero; HEX0 = three;
         end
         5'b00100: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = zero; HEX0 = four;
         end
         5'b00101: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = zero; HEX0 = five;
         end
         5'b00110: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = zero; HEX0 = six;
         end
         5'b00111: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = zero; HEX0 = seven;
         end
         5'b01000: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = zero; HEX0 = eight;
         end
         5'b01001: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = zero; HEX0 = nine;
         end
         5'b01010: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = one; HEX0 = zero;
         end
         5'b01011: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = one; HEX0 = one;
         end
         5'b01100: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = one; HEX0 = two;
         end
         5'b01101: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = one; HEX0 = three;
         end
         5'b01110: begin
            HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = one; HEX0 = four;
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            end
            5'b01111: begin
               HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = one; HEX0 = five;
            end
            5'b10000: begin
               HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = one; HEX0 = six;
            end
            5'b10001: begin
               HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = one; HEX0 = seven;
            end
            5'b10010: begin
               HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = one; HEX0 = eight;
            end
            5'b10011: begin
               HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = one; HEX0 = nine;
            end
            5'b10100: begin
               HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = two; HEX0 = zero;
            end
            5'b10101: begin
               HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = two; HEX0 = one;
            end
            5'b10110: begin
               HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = two; HEX0 = two;
            end
            5'b10111: begin
               HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = two; HEX0 = three;
            end
            5'b11000: begin
               HEX5 = n; HEX4 = n; HEX3 = n; HEX2 = n; HEX1 = two; HEX0 = four;
            end
            5'b11001: begin
               HEX5 = F; HEX4 = U; HEX3 = L; HEX2 = L; HEX1 = two; HEX0 = five;
            end
            default: begin
               HEX5 = F; HEX4 = U; HEX3 = L; HEX2 = L; HEX1 = two; HEX0 = five;
            end
         endcase
      end

   endmodule

   module display_testbench();

      logic [6:0] HEX0, HEX1, HEX2, HEX3, HEX4, HEX5;
      logic [4:0] z;
      logic clk;

      display dut (.clk, .z, .HEX0, .HEX1, .HEX2, .HEX3, .HEX4, .HEX5);

      parameter CLOCK_PERIOD = 100;
      initial clk = 1;
      always begin
         #(CLOCK_PERIOD / 2);
         clk = ~clk;
      end

      initial begin
                     @(posedge clk);
                     @(posedge clk);
                     @(posedge clk);
                     @(posedge clk);
            z = 5'b00000;  @(posedge clk);
            @(posedge clk);
            z = 5'b00001;  @(posedge clk);
            @(posedge clk);
            z = 5'b00010;  @(posedge clk);
            @(posedge clk);
            z = 5'b00011;  @(posedge clk);
            @(posedge clk);
            z = 5'b00100;  @(posedge clk);
            z = 5'b00101;  @(posedge clk);
            z = 5'b00110;  @(posedge clk);
            z = 5'b00111;  @(posedge clk);
            z = 5'b01000;  @(posedge clk);
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150             z = 5'b01001;  @(posedge clk);
151             z = 5'b01010;  @(posedge clk);
152             z = 5'b01011;  @(posedge clk);
153             z = 5'b01100;  @(posedge clk);
154             z = 5'b01101;  @(posedge clk);
155             z = 5'b01110;  @(posedge clk);
156             z = 5'b01111;  @(posedge clk);
157             z = 5'b10000;  @(posedge clk);
158             z = 5'b10001;  @(posedge clk);
159             z = 5'b10010;  @(posedge clk);
160             z = 5'b10011;  @(posedge clk);
161             z = 5'b10100;  @(posedge clk);
162             z = 5'b10101;  @(posedge clk);
163             z = 5'b10110;  @(posedge clk);
164             z = 5'b10111;  @(posedge clk);
165             z = 5'b11000;  @(posedge clk);
166             z = 5'b11001;  @(posedge clk);
167             z = 5'b11010;  @(posedge clk);
168             z = 5'b11011;  @(posedge clk);
169             z = 5'b11100;  @(posedge clk);
170             z = 5'b11101;  @(posedge clk);
171             z = 5'b11110;  @(posedge clk);
172             z = 5'b11111;  @(posedge clk);
173         $stop;
174       end
175
176   endmodule
177
```