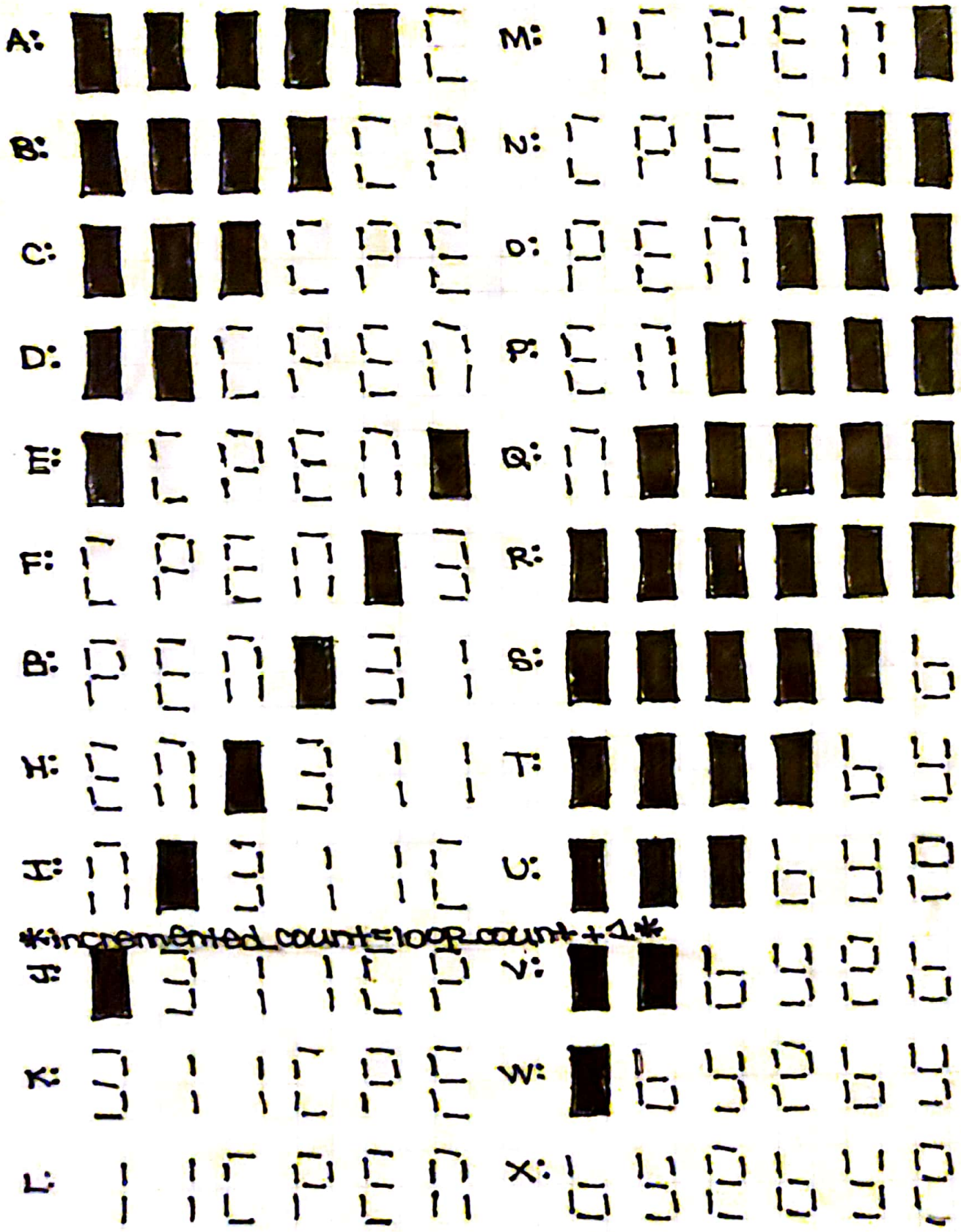
Verilog Scrolling Display "CPEN 341"

Codes



incremented count=loop count+1

Y:

b:

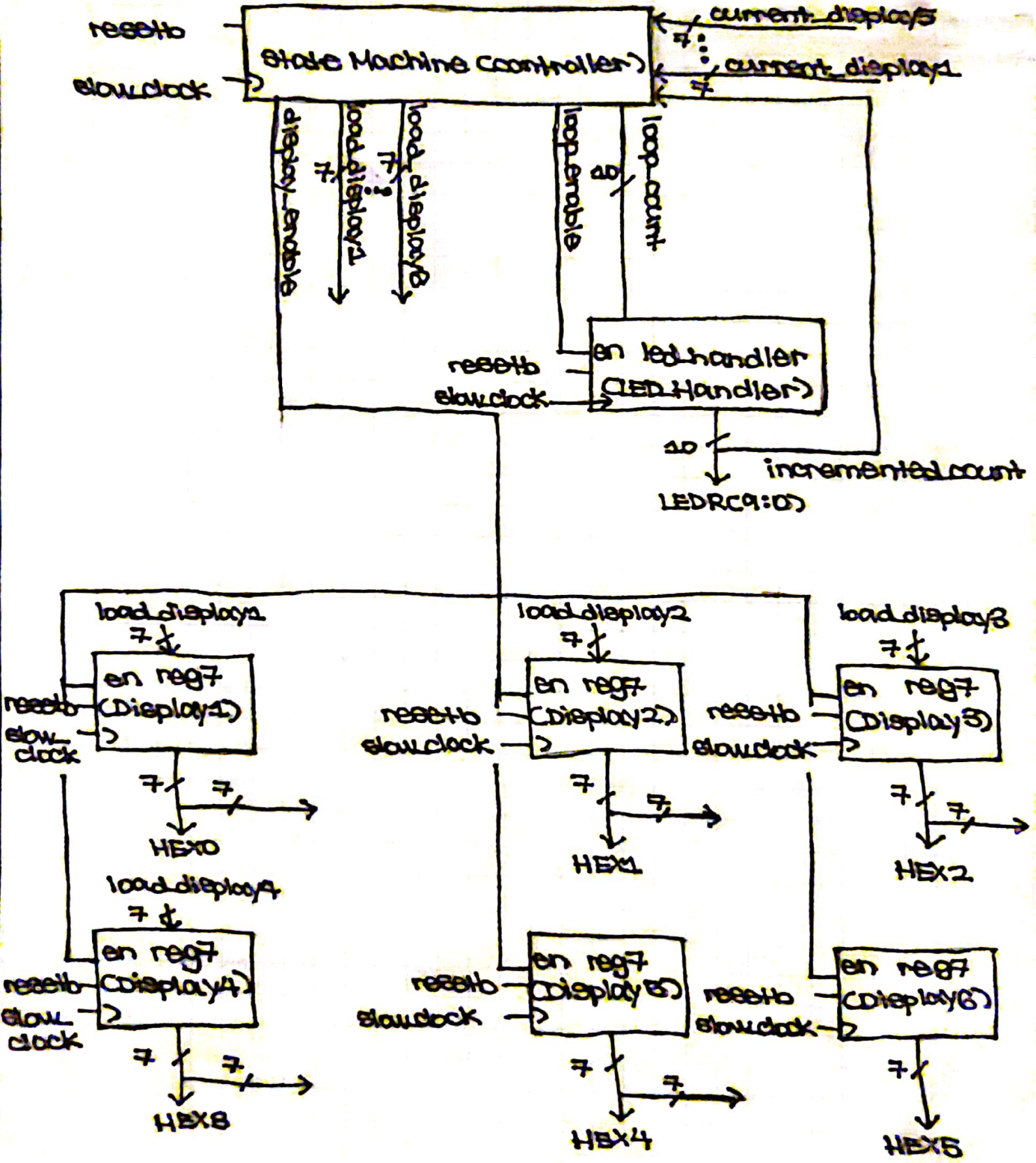
#:

c:

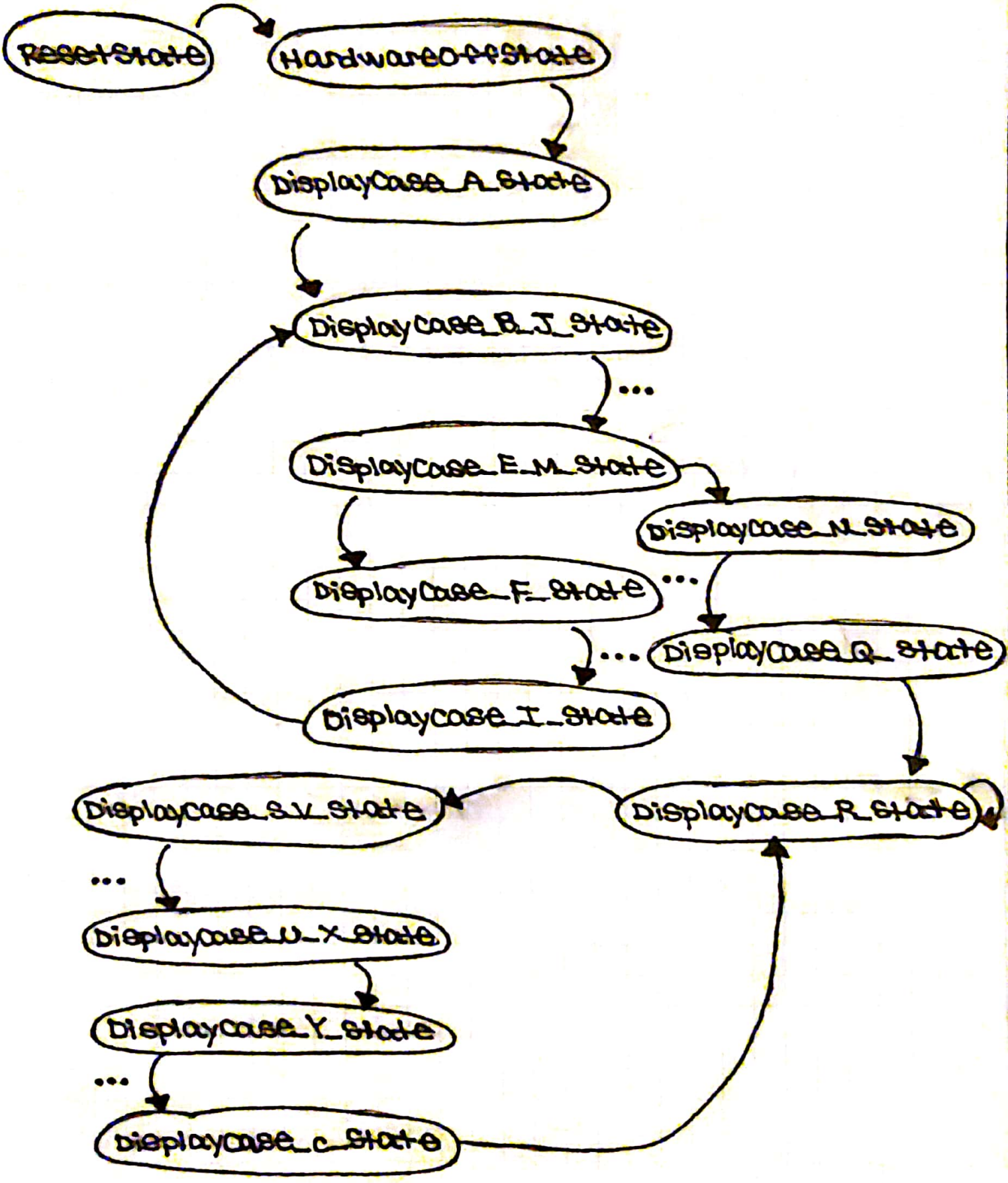
a:

Encoding

Circuit Diagram



State Machine



State Transitions

X → ResetState: (reset_btn == 0) && (posedge clock)

ResetState → HardwareOffState: (reset_btn == 1) && (posedge clock)

HardwareOffState → DisplayCase_A_State:
(reset_btn == 1) && (posedge clock)

DisplayCase_A_State → DisplayCase_B_I_State:
(reset_btn == 1) && (posedge clock)

...

DisplayCase_B_I_State → DisplayCase_E_M_State:
(reset_btn == 1) && (posedge clock)

DisplayCase_E_M_State → DisplayCase_F_State:
(reset_btn == 1) && (posedge clock)
&& (incremented_count < 10'b1000000000)

DisplayCase_E_M_State → DisplayCase_N_State:
(reset_btn == 1) && (posedge clock)
&& (incremented_count == 10'b1000000000)

...

DisplayCase_F_State → DisplayCase_I_State:
(reset_btn == 1) && (posedge clock)

DisplayCase_I_State → DisplayCase_B_I_State:
(reset_btn == 1) && (posedge clock)

...

DisplayCase_N_State → DisplayCase_O_State:
(reset_btn == 1) && (posedge clock)

DisplayCase_O_State → DisplayCase_R_State:
(reset_btn == 1) && (posedge clock)

DisplayCase_R_State → DisplayCase_S_V_State:
(reset_btn == 1) && (posedge clock)
&& (incremented_count != 10'b1111111111)

DisplayCase_R_State → DisplayCase_R_State:
(reset_b == 1) && (posedge clock)
&& (Incremented_count == 20'b11111111111111111111)

...

DisplayCase_B_Y_State → DisplayCase_U_X_State:
(reset_b == 1) && (posedge clock)

DisplayCase_U_X_State → DisplayCase_Y_State:
(reset_b == 1) && (posedge clock)

...

DisplayCase_Y_State → DisplayCase_C_State:
(reset_b == 1) && (posedge clock)

DisplayCase_C_State → DisplayCase_R_State:
(reset_b == 1) && (posedge clock)