

Block-Level Representation of Design

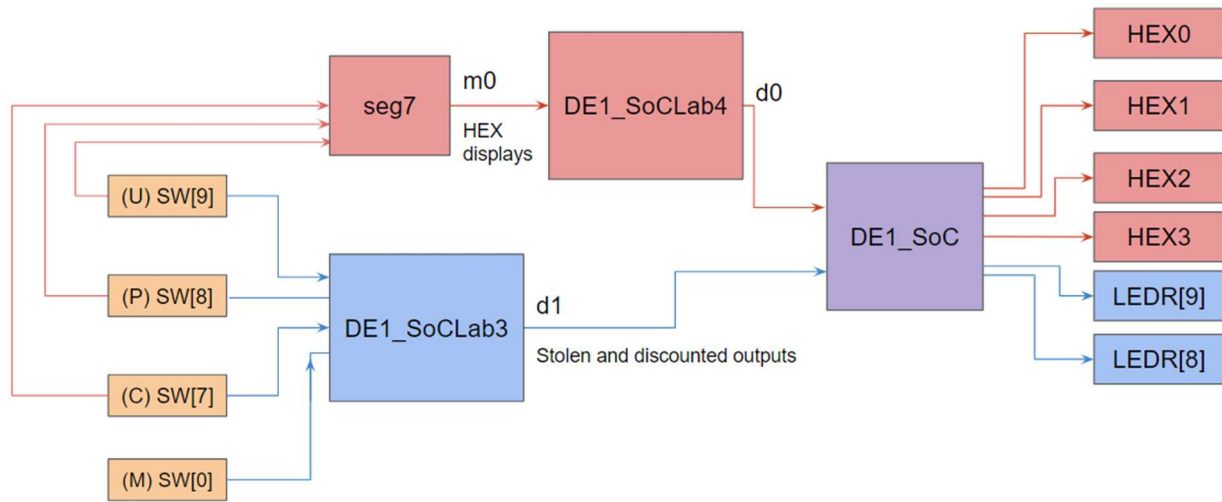
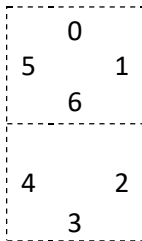


Table of Inputs and Outputs

U	P	C	M	Discount	Stolen	Number of Hex Displays Used	Hex Display
0	0	0	0	0	1	2	(Table)
0	0	0	1	0	0	2	(Table)
0	0	1	0	0	0	3	PEn
0	0	1	1	X	X	3	PEn
0	1	0	0	X	X	X	X
0	1	0	1	X	X	X	X
0	1	1	0	1	0	4	dOLL
0	1	1	1	X	X	4	dOLL
1	0	0	0	0	1	4	FISH
1	0	0	1	0	0	4	FISH
1	0	1	0	1	1	2	(Chair)
1	0	1	1	1	0	2	(Chair)
1	1	0	0	1	0	3	(Hat)
1	1	0	1	X	X	3	(Hat)
1	1	1	0	X	X	X	X
1	1	1	1	X	X	X	X

Hex Display Representation



Using the above reference as a guide, and matching with the order of positions in 7-bit binary: 6543210, the different segments for the Hex display can be controlled. Since the HEX display is ACTIVE LOW, a LOW (0) at a position would keep that segment on while a HIGH (1) would turn it off. If the output does not matter, then the 7-bit equivalent of X, which is 7'bX is used instead. For outputs with less than four hex displays needed for the description, the rest of the unused HEXs are set to HIGH, to not confused with “don’t matter” outputs.

Case (UPC input):	Hex Encoding
000	HEX1 = 7'b0101111; HEX0 = 7'b0111011; HEX2 = 7'b1111111; HEX3 = 7'b1111111;
001	HEX2 = 7'b0001100; HEX1 = 7'b0000110; HEX0 = 7'b0101011; HEX3 = 7'b1111111;
011	HEX3 = 7'b0100001; HEX2 = 7'b1000000; HEX1 = 7'b1000111; HEX0 = 7'b1000111;
100	HEX3 = 7'b0001110; HEX2 = 7'b1001111; HEX1 = ~7'b1101101; HEX0 = 7'b0001001;
101	HEX1 = 7'b0101111; HEX0 = 7'b0111001; HEX2 = 7'b1111111; HEX3 = 7'b1111111;
110	HEX2 = 7'b1110111; HEX1 = 7'b0101011; HEX0 = 7'b1110111; HEX3 = 7'b1111111;
Default (not matching any other cases)	HEX0 = 7'bX; HEX1 = 7'bX; HEX2 = 7'bX; HEX3 = 7'bX;