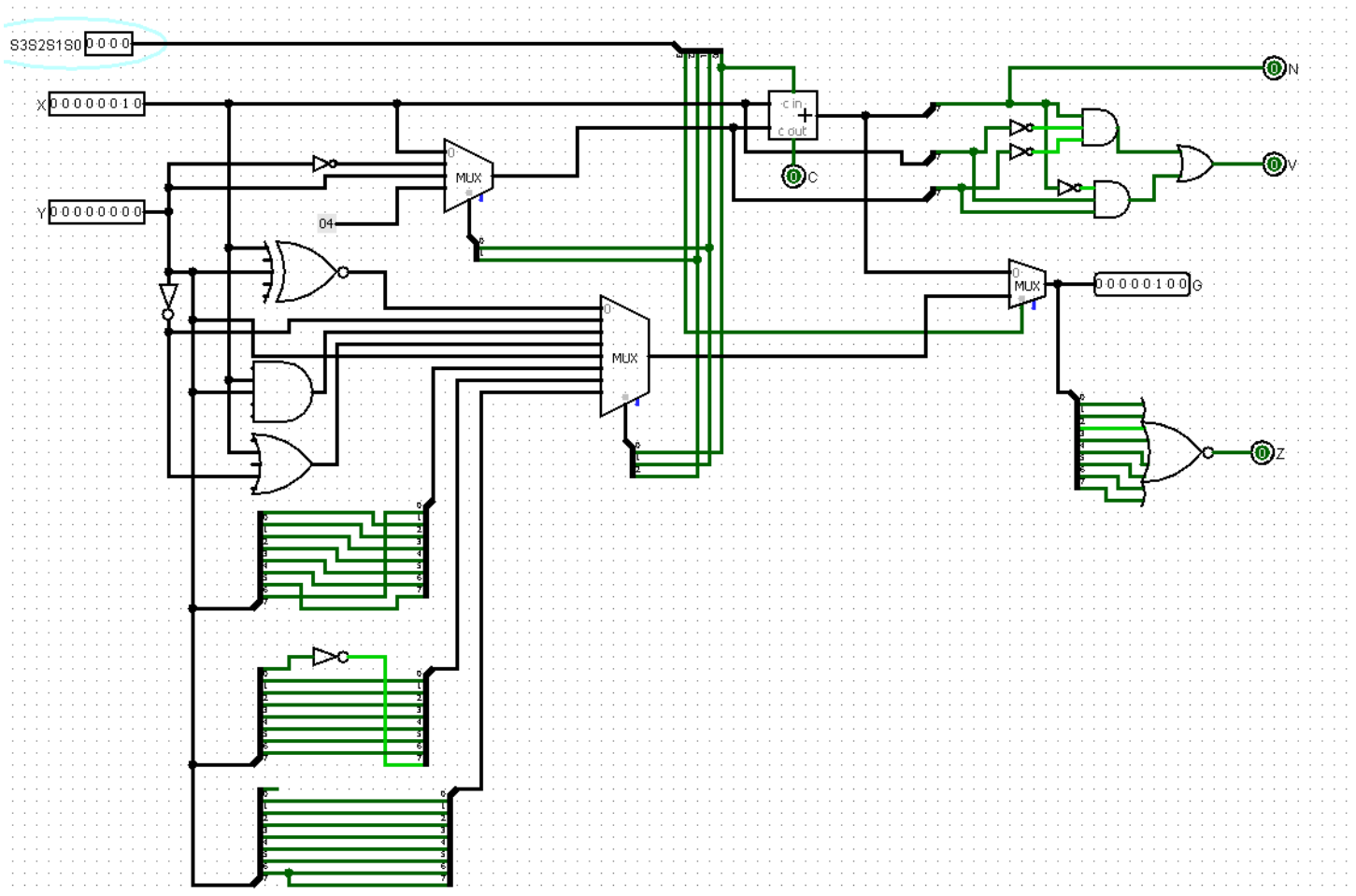


The Circuit



Test Cases

INPUT				OPERATION	INPUT		EXPECTED OUTPUT				
S3	S2	S1	S0		X	Y	G	C	V	N	Z
0	0	0	0	$G = X * 2$	1000 0001	X	0000 0010	1	1	0	0
0	0	0	1	$G = X * 2 + 1$	1000 0001	X	0000 0011	1	1	0	0
0	0	1	0	$G = X + Y'$	1000 0001	0000 0010	0111 1110	1	1	0	0
0	0	1	1	$G = X - Y$	1000 0001	0000 0010	0111 1111	1	1	0	0
0	1	0	0	$G = X + Y$	1000 0001	0000 0010	1000 0011	0	0	1	0
0	1	0	1	$G = X + Y + 1$	1000 0001	0000 0010	1000 0100	0	0	1	0
0	1	1	0	$G = X + 4$	1000 0001	X	1000 0101	0	0	1	0
0	1	1	1	$G = X + 5$	1000 0001	X	1000 0110	0	0	1	0
1	0	0	0	$G = X \text{ XNOR } Y$	1000 0001	0000 0010	0111 1100	X	X	X	0
1	0	0	1	$G = Y'$	X	0000 0010	1111 1101	X	X	X	0
1	0	1	0	$G = X \text{ AND } Y$	1000 0001	0000 0010	0000 0000	X	X	X	1
1	0	1	1	$G = X \text{ OR } Y'$	1000 0001	0000 0010	1111 1101	X	X	X	0
1	1	0	0	$G = Y$	X	0000 0010	0000 0010	X	X	X	0
1	1	0	1	$G = \text{Circular Shift Left } Y$	X	0000 0010	0000 0100	X	X	X	0
1	1	1	0	$G = \text{Switch Tail Right } Y$	X	0000 0010	1000 0001	X	X	X	0
1	1	1	1	$G = \text{Arithmetic Shift Right } Y$	X	0000 0010	0000 0001	X	X	X	0