James J. Kim
SER232 - Summer Term B

Project 2 Circuit Design Document

4x1 Multiplexer Truth Table

S_1	S_0	Output
0	0	i_0
0	1	i_1
1	0	i_2
1	1	i_3

Boolean Algebra

Output = $i_0S_1'S_0' + i_1S_0S_1' + i_2S_0'S_1 + i_3S_1S_0$

Priority Encoder Truth Table

i_3	i_2	i_1	i_0	S_1	S_0	V
0	0	0	0	x	x	0
0	0	0	1	0	0	1
0	0	1	x	0	1	1
0	1	x	x	1	0	1
1	x	x	x	1	1	0

Boolean Algebra

$S_0 = i_1i_2'i_3' + i_3$
$S_1 = i_2i_3' + i_3$
$V = i_0i_1'i_2'i_3' + i_1i_2'i_3' + i_2i_3' + i_3$