

## Aufgabe 1.1 - Kombinatorische Schaltungen und Minimierung

unsigned

x3	x2	x1	x0		y3	y2	y1	y0			
0	0	0	0		0	0	0	0			
0	0	0	1		0	0	0	0			
0	0	1	0		0	0	0	0			
0	0	1	1		0	0	0	0			
0	1	0	0		0	0	0	0			
0	1	0	1		0	0	0	1			
0	1	1	0		0	0	1	0			
0	1	1	1		0	0	1	1			
1	0	0	0		0	0	0	0			
1	0	0	1		0	0	1	0			
1	0	1	0		0	1	0	0			
1	0	1	1		0	1	1	0			
1	1	0	0		0	0	0	0			
1	1	0	1		0	0	1	1			
1	1	1	0		0	1	1	0			
1	1	1	1		1	0	0	1			

signed

int	x3	x2	int	x1	x0		y3	y2	y1	y0	Ergebnis int	
0	0	0	0	0	0		0	0	0	0	0	
0	0	0	1	0	1		0	0	0	0	0	
0	0	0	-2	1	0		0	0	0	0	0	
0	0	0	-1	1	1		0	0	0	0	0	
1	0	1	0	0	0		0	0	0	0	0	
1	0	1	1	0	1		0	0	0	1	1	
1	0	1	-2	1	0		1	1	1	0	-2	
1	0	1	-1	1	1		1	1	1	1	-1	
-2	1	0	0	0	0		0	0	0	0	0	
-2	1	0	1	0	1		1	1	1	0	-2	
-2	1	0	-2	1	0		0	1	0	0	4	
-2	1	0	-1	1	1		0	0	1	0	2	
-1	1	1	0	0	0		0	0	0	0	0	
-1	1	1	1	0	1		1	1	1	1	-1	
-1	1	1	-2	1	0		0	0	1	0	2	
-1	1	1	-1	1	1		0	0	0	1	1	



unsigned

	x1, x0			
x3, x2	00	01	11	10
00				
01		1	1	
11		1	1	
10				

$$y0 = x2 \wedge x0$$

	x1, x0			
x3, x2	00	01	11	10
00				
01			1	1
11		1		1
10		1	1	

$$y1 = (x3 \wedge \neg x1 \wedge x0) \vee (x3 \wedge \neg x2 \wedge x0) \vee (\neg x3 \wedge x2 \wedge x1) \vee (x1 \wedge \neg x0)$$

	x1, x0			
x3, x2	00	01	11	10
00				
01				
11				1
10			1	1

$$y2 = (x3 \wedge x1 \wedge \neg x0) \vee (x3 \wedge \neg x2 \wedge x1)$$

	x1, x0			
x3, x2	00	01	11	10
00				
01				
11			1	
10				

$$y3 = (x3 \wedge x2 \wedge x1 \wedge x0)$$

signed

	<b>x1, x0</b>			
<b>x3, x2</b>	00	01	11	10
00				
01		1	1	
11		1	1	
10				

$$y0 = x2 \wedge x0$$

	<b>x1, x0</b>			
<b>x3, x2</b>	00	01	11	10
00				
01			1	1
11		1		1
10		1	1	

$$y1 = (x3 \wedge \neg x1 \wedge x0) \vee (x3 \wedge \neg x2 \wedge x0) \vee (\neg x3 \wedge x2 \wedge x1) \vee (x1 \wedge \neg x0)$$

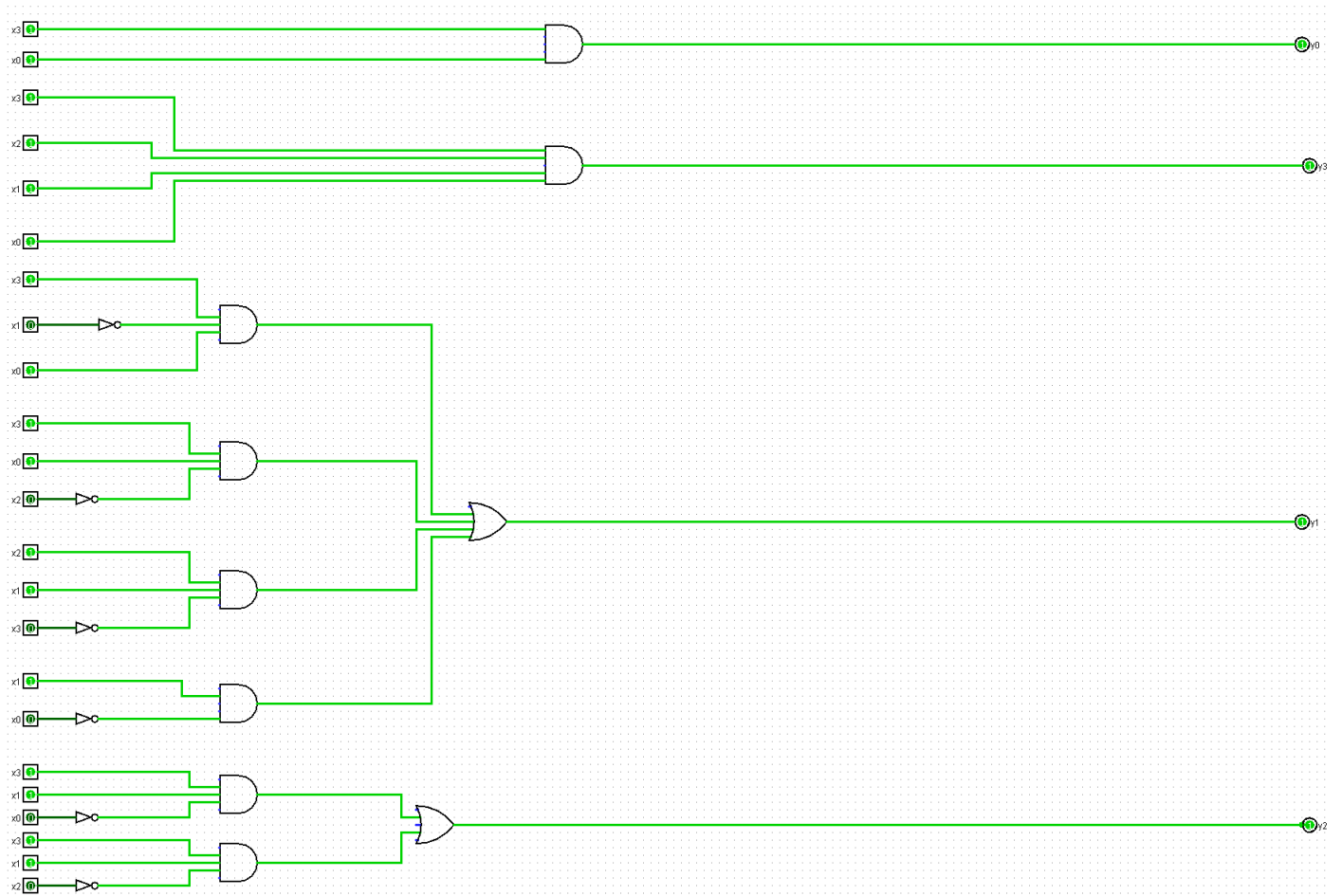
	<b>x1, x0</b>			
<b>x3, x2</b>	00	01	11	10
00				
01			1	1
11		1		
10		1		1

$$y2 = (\neg x1 \wedge x0 \wedge x3) \vee (\neg x3 \wedge x2 \wedge x1) \vee (x3 \wedge \neg x2 \wedge x1 \wedge \neg x0)$$

	<b>x1, x0</b>			
<b>x3, x2</b>	00	01	11	10
00				
01			1	1
11		1		
10		1		

$$y3 = (\neg x1 \wedge x0 \wedge x3) \vee (\neg x3 \wedge x2 \wedge x1)$$

## Schaltungen für unsigned



## Schaltungen signed (nur y2 und y3 da y1 und y0 gleich geblieben sind)

