

Report

№: 2

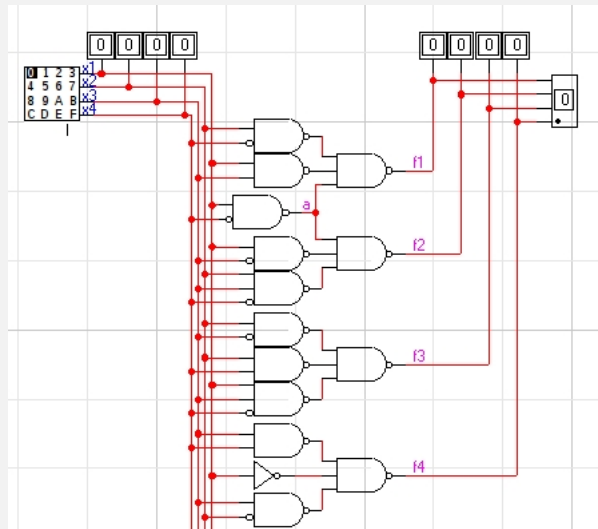
Subject: ASDN
Code convertors

Author:
Prof:

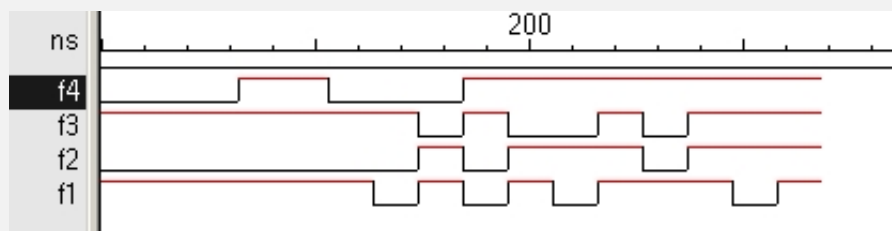
Terman Emil FAF161
S. Munteanu

Chisinau 2017

Objective: Practical study of methods to convert codes



Img 1: Converter Circuit: [8, 6, 1, -4] → [4, 3, 2, 1]



Img 2: Circuit timer

$$C = 34Q$$

$$T_d = 2r$$

$$a = x_1 \overline{x_4}$$

$$f_1 = x_2 \overline{x_4} + x_1 \overline{x_4} + x_1 x_3 = \overline{\overline{x_2 \overline{x_4} \cdot \overline{a} \cdot \overline{x_1 x_3}}}$$

$$f_3 = x_2 \overline{x_3} + x_2 x_4 + x_1 x_3 \overline{x_4} = \overline{\overline{x_2 \overline{x_3} \cdot \overline{x_2 x_4} \cdot \overline{x_1 x_3 \overline{x_4}}}}$$

$$f_2 = x_1 \overline{x_4} + x_1 \overline{x_3} + x_2 x_3 \overline{x_4} = \overline{\overline{\overline{a} \cdot \overline{x_1 \overline{x_3} \cdot x_2 x_3 \overline{x_4}}}}$$

$$f_4 = x_1 + x_3 x_4 + \overline{x_2} x_3 = \overline{\overline{\overline{x_1} \cdot \overline{x_3 x_4} \cdot \overline{x_2 x_3}}}$$

	x_1	x_2	x_3	x_4	f_1	f_2	f_3	f_4
	8	6	1	-4	4	3	2	1
0	0	0	0	0	0	0	0	0
1	0	0	1	0	0	0	0	1
2	0	1	0	1	0	0	1	0
3	0	1	1	1	0	0	1	1
4	1	0	0	1	0	1	0	1
5	1	0	1	1	1	0	0	1
6	0	1	0	0	1	0	1	0
7	0	1	1	0	1	1	0	0
8	1	0	0	0	1	1	0	1
9	1	0	1	0	1	1	1	1

Tab 1: Conversion table

f1					f2				
x_1x_2					x_1x_2				
	00	01	11	10		00	01	11	10
00	0	1	*	1	00	0	0	*	1
01	*	0	*	0	01	*	0	*	1
11	*	0	*	1	11	*	0	*	0
10	0	1	*	1	10	0	1	*	1

f3					f4				
x_1x_2					x_1x_2				
	00	01	11	10		00	01	11	10
00	0	1	*	0	00	0	0	*	1
01	*	1	*	0	01	*	0	*	1
11	*	1	*	0	11	*	1	*	1
10	0	0	*	1	10	1	0	*	1

Tab 2: Karnaugh maps for f_1, f_2, f_3, f_4

Conclusion:

In this laboratory work I learned how to create binary convertors using only *NAND* gates.