Lab 2

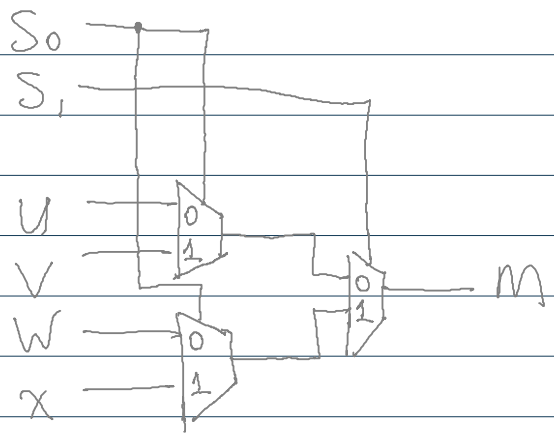
May 22, 2021 12:43 PM

Part II

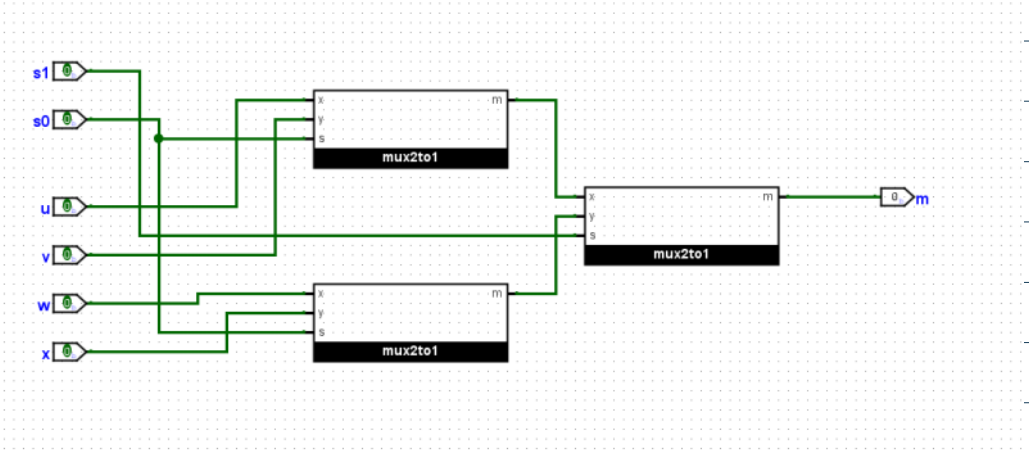
1. How many rows

It would have $2^6 = 64$ rows, because thats the number of different permutations 6 bits can make

2. Schematic



3. Logisim



Part III

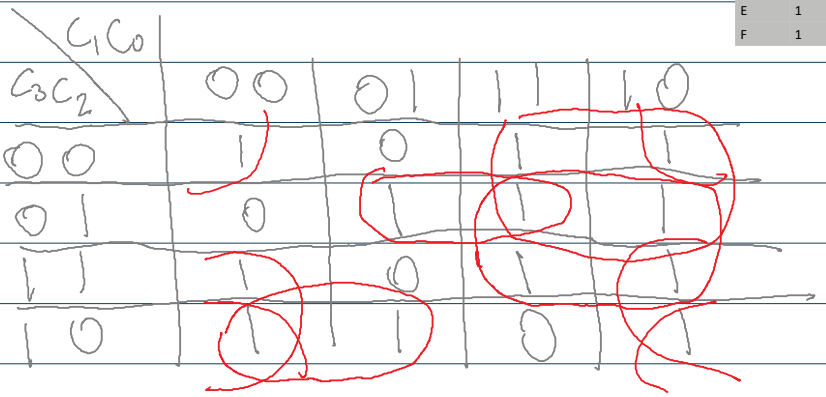
HEX	C3	C2	C1	C0	0	1	2	3	4	5	6
0	0	0	0	0	1	1	1	1	1	1	0
1	0	0	0	1	0	1	1	0	0	0	0
2	0	0	1	0	1	1	0	1	1	0	1
3	0	0	1	1	1	1	1	1	0	0	1
4	0	1	0	0	0	1	1	0	0	1	1
5	0	1	0	1	1	0	1	1	0	1	1
6	0	1	1	0	1	0	1	1	1	1	1
7	0	1	1	1	1	1	1	0	0	0	0
8	1	0	0	0	1	1	1	1	1	1	1

1. Boolean expressions

5	0	1	0	1	1	0	1	1	0	1	1
6	0	1	1	0	1	0	1	1	1	1	1
7	0	1	1	1	1	1	1	0	0	0	0
8	1	0	0	0	1	1	1	1	1	1	1
9	1	0	0	1	1	1	1	1	0	1	1
A	1	0	1	0	1	1	1	0	1	1	1
b	1	0	1	1	0	0	1	1	1	1	1
C	1	1	0	0	1	0	0	1	1	1	0
d	1	1	0	1	0	1	1	1	1	0	1
E	1	1	1	0	1	0	0	1	1	1	1
F	1	1	1	1	1	0	0	0	1	1	1

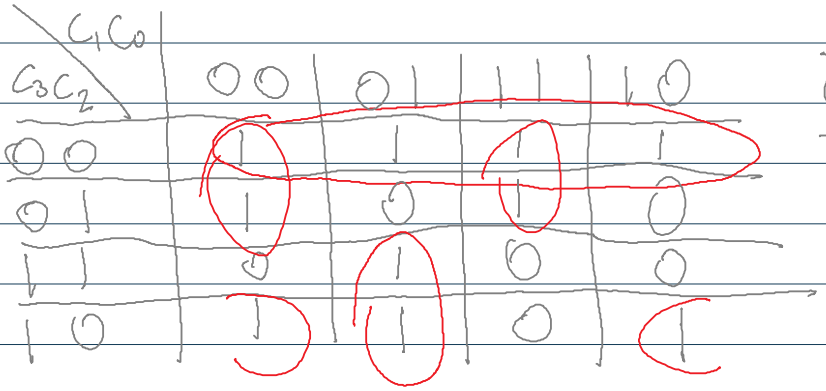
1. Boolean expressions

0



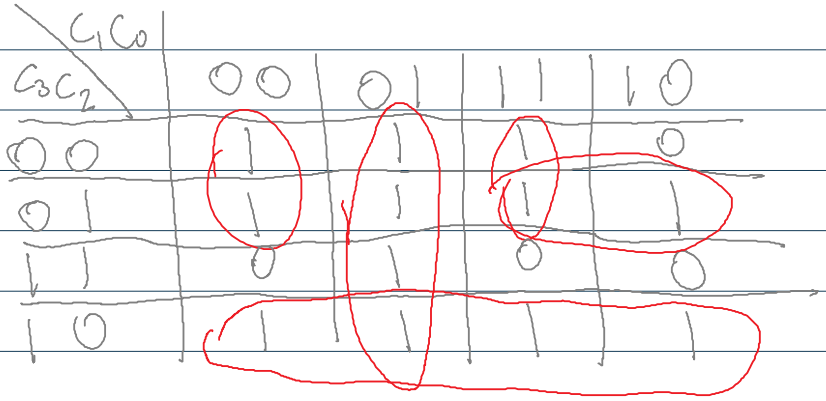
$\overline{C_2}\,\overline{C_0} + \overline{C_3}\,C_1 + \overline{C_3}\,C_2 C_0 + C_2 C_1 + C_3 \overline{C_0} + C_3 \overline{C_2}\,\overline{C_1}$

1



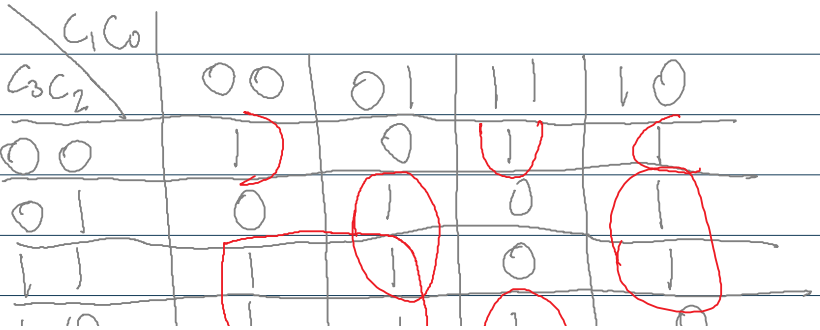
$\overline{C_3}\,\overline{C_1}\,\overline{C_0} + \overline{C_3}\,C_1 C_0 + \overline{C_3}\,C_2 + C_3 \overline{C_1}\,C_0 + C_3 \overline{C_2}\,\overline{C_0}$

2

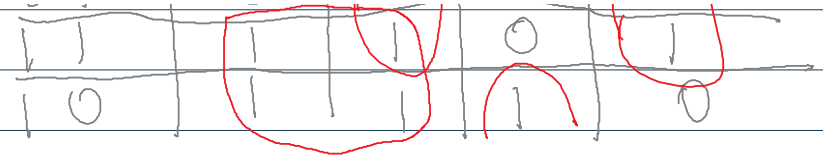


$\overline{C_3}\,\overline{C_1}\,\overline{C_0} + \overline{C_3}\,C_1 C_0 + \overline{C_3}\,C_2 C_1 + \overline{C_1}\,C_0 + C_3 \overline{C_2}$

3



$\overline{C_3}\,\overline{C_2}\,\overline{C_0} + C_2 \overline{C_1} C_0 + \overline{C_2} C_1 C_0 + C_2 C_1 \overline{C_0} + C_3 \overline{C_1}$



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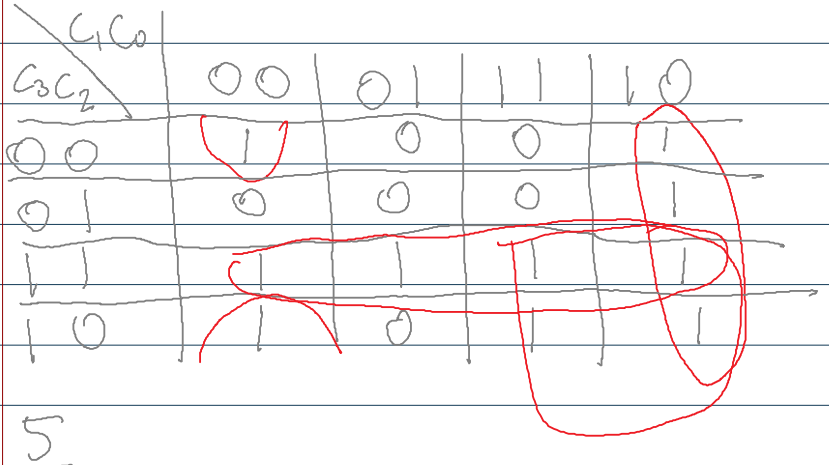
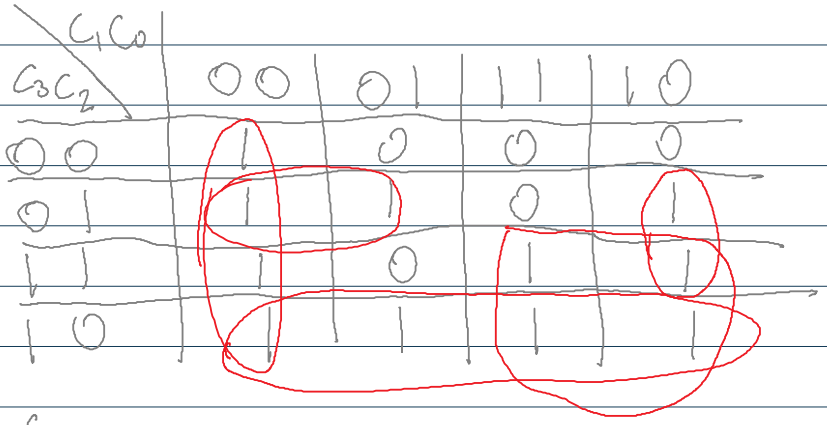


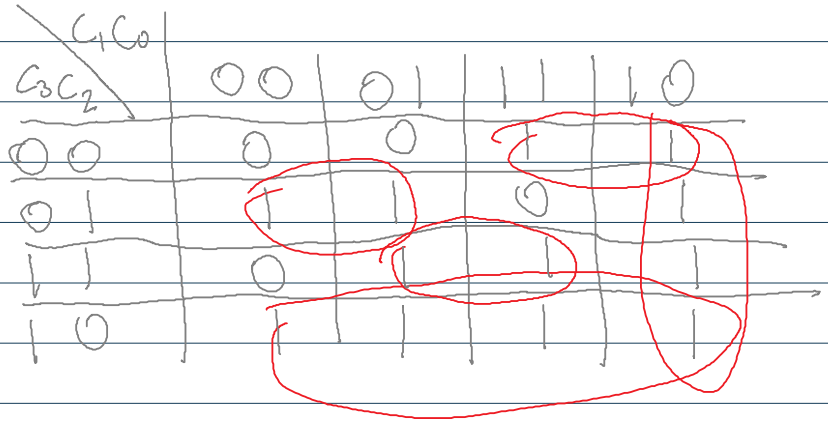
$\overline{C_2}\,\overline{C_1}\overline{C_0} + C_1\overline{C_0} + C_3C_2 + C_3C_1$

5



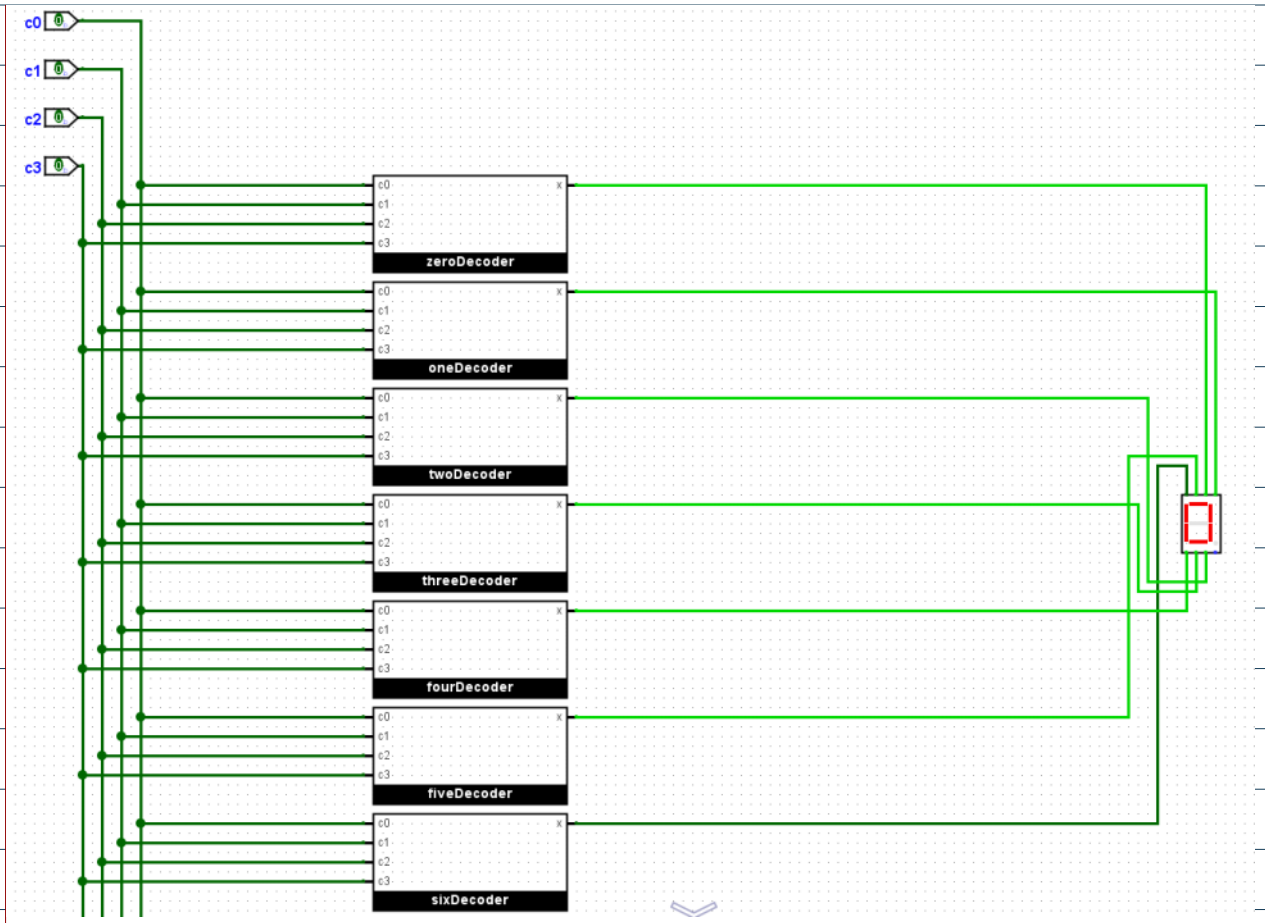
$\overline{C_3}\,C_2\overline{C_1} + C_2C_1\overline{C_0} + \overline{C_1}\,\overline{C_0} + C_3\overline{C_2} + C_3C_1$

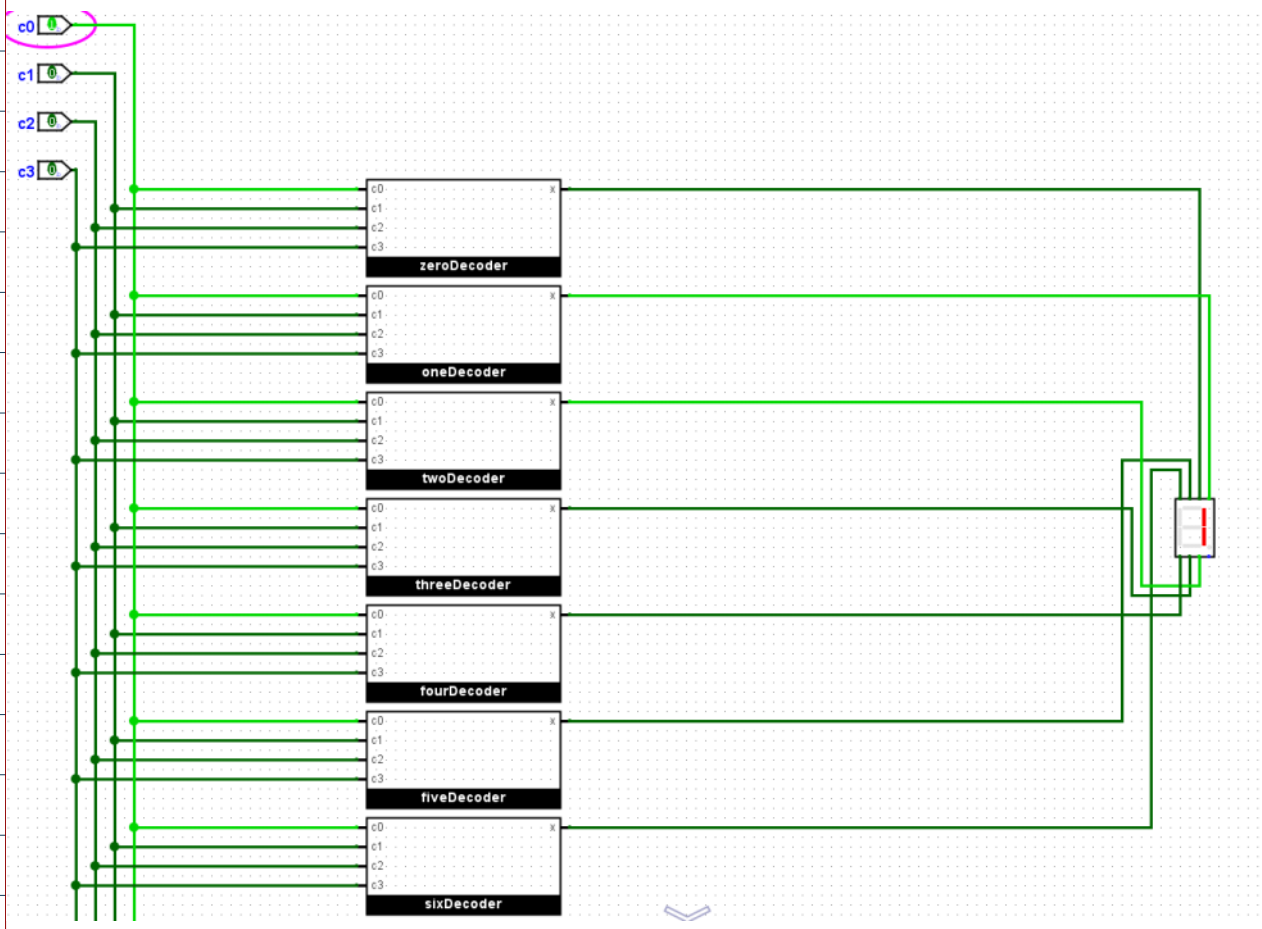
6

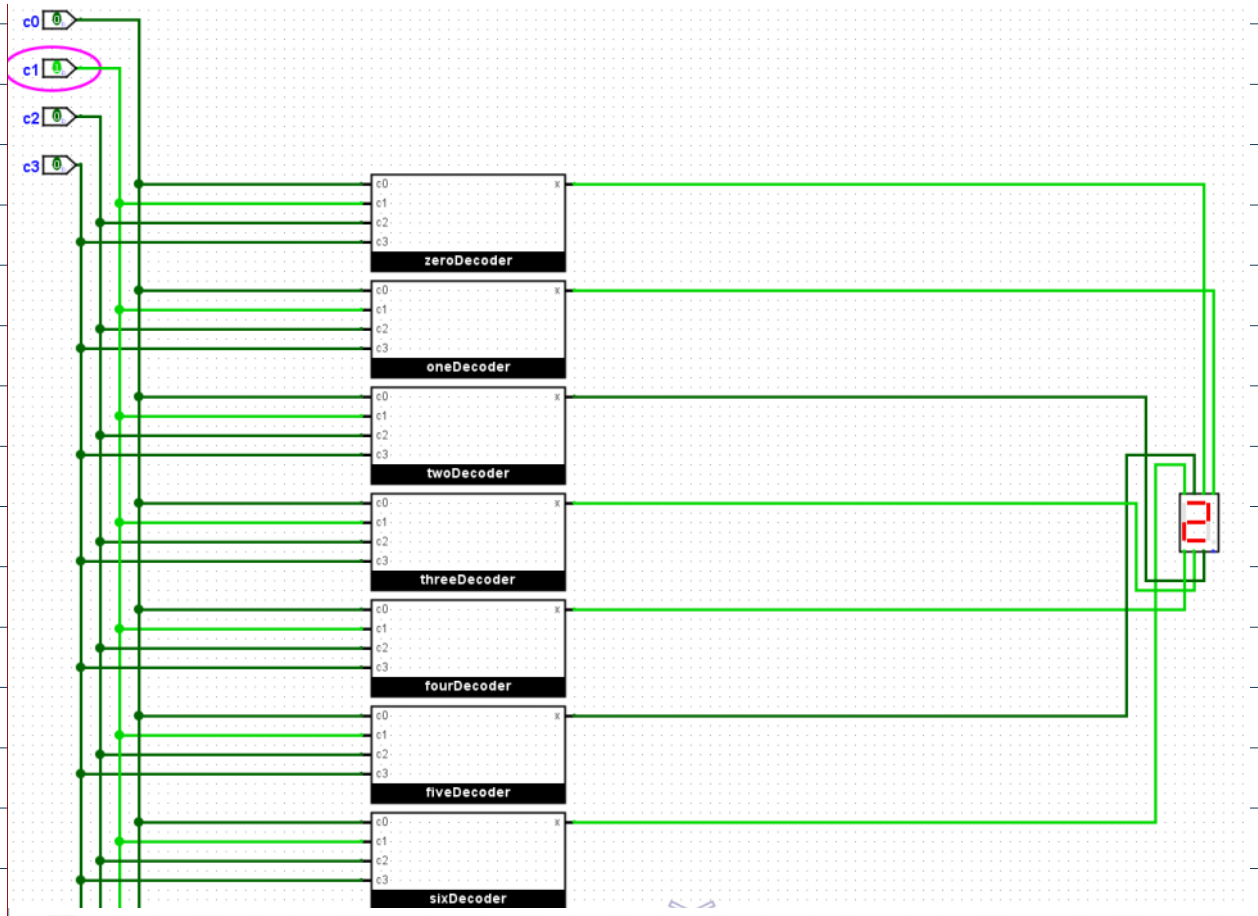


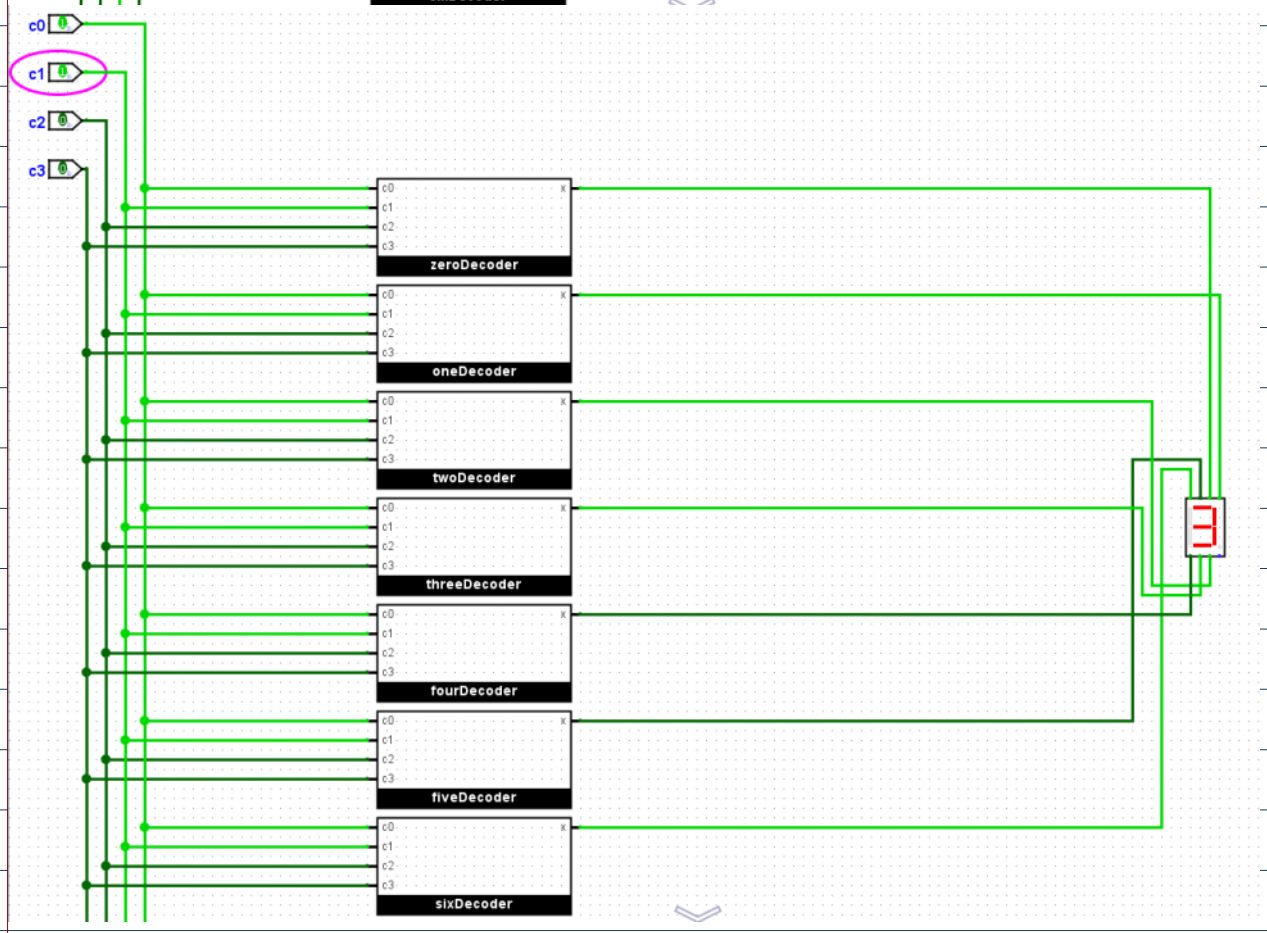
$\overline{C_3}\,C_2\overline{C_1} + C_3C_2C_0 + \overline{C_3}\,\overline{C_2}\,C_1 + C_3\overline{C_2} + C_1\overline{C_0}$

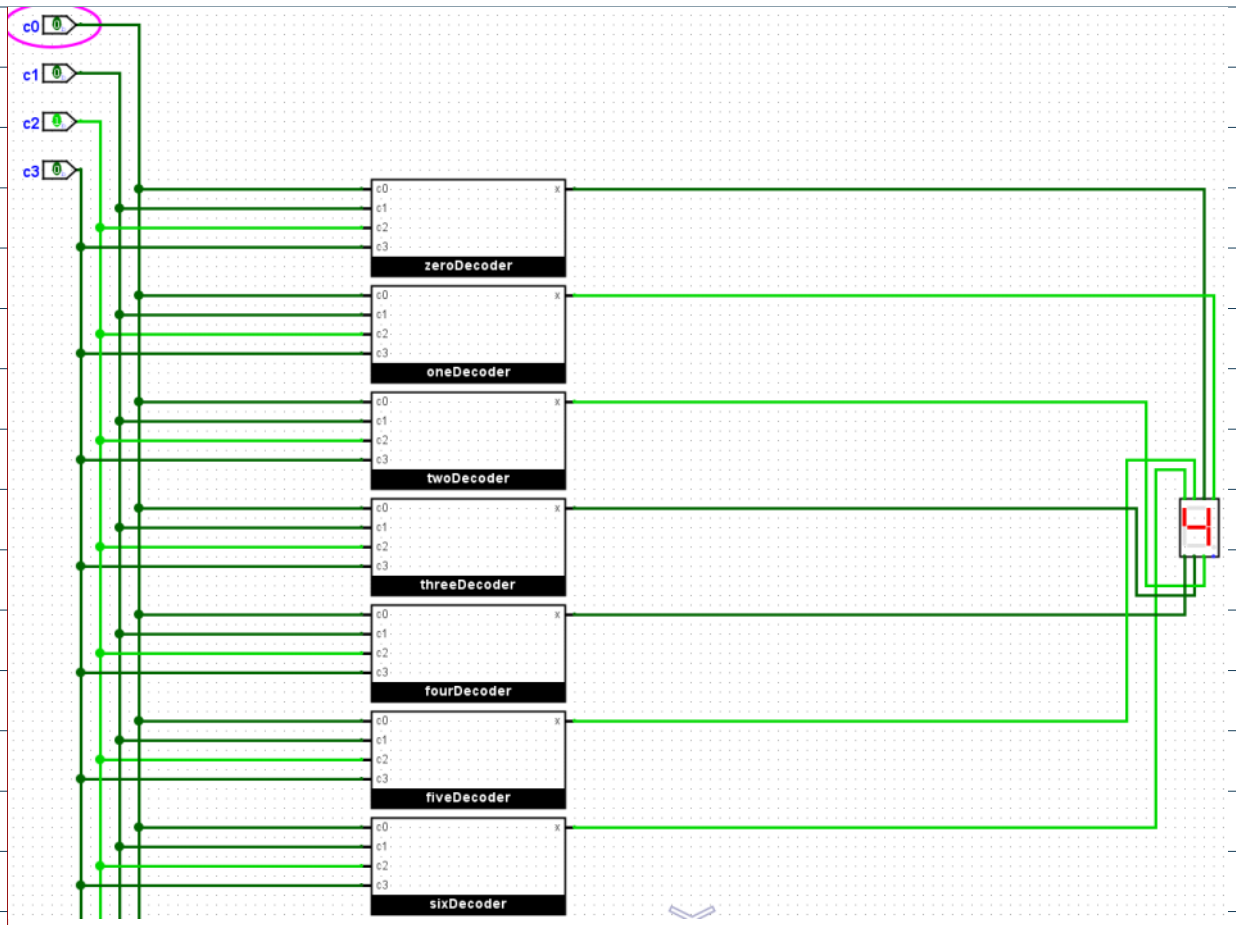
3. Tests


c0
c1
c2
c3
zeroDecoder
oneDecoder
twoDecoder
threeDecoder
fourDecoder
fiveDecoder
sixDecoder


c0
c1
c2
c3
zeroDecoder
oneDecoder
twoDecoder
threeDecoder
fourDecoder
fiveDecoder
sixDecoder


c0
c1
c2
c3
zeroDecoder
oneDecoder
twoDecoder
threeDecoder
fourDecoder
fiveDecoder
sixDecoder


c0
c1
c2
c3
zeroDecoder
oneDecoder
twoDecoder
threeDecoder
fourDecoder
fiveDecoder
sixDecoder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c1
c2
c3
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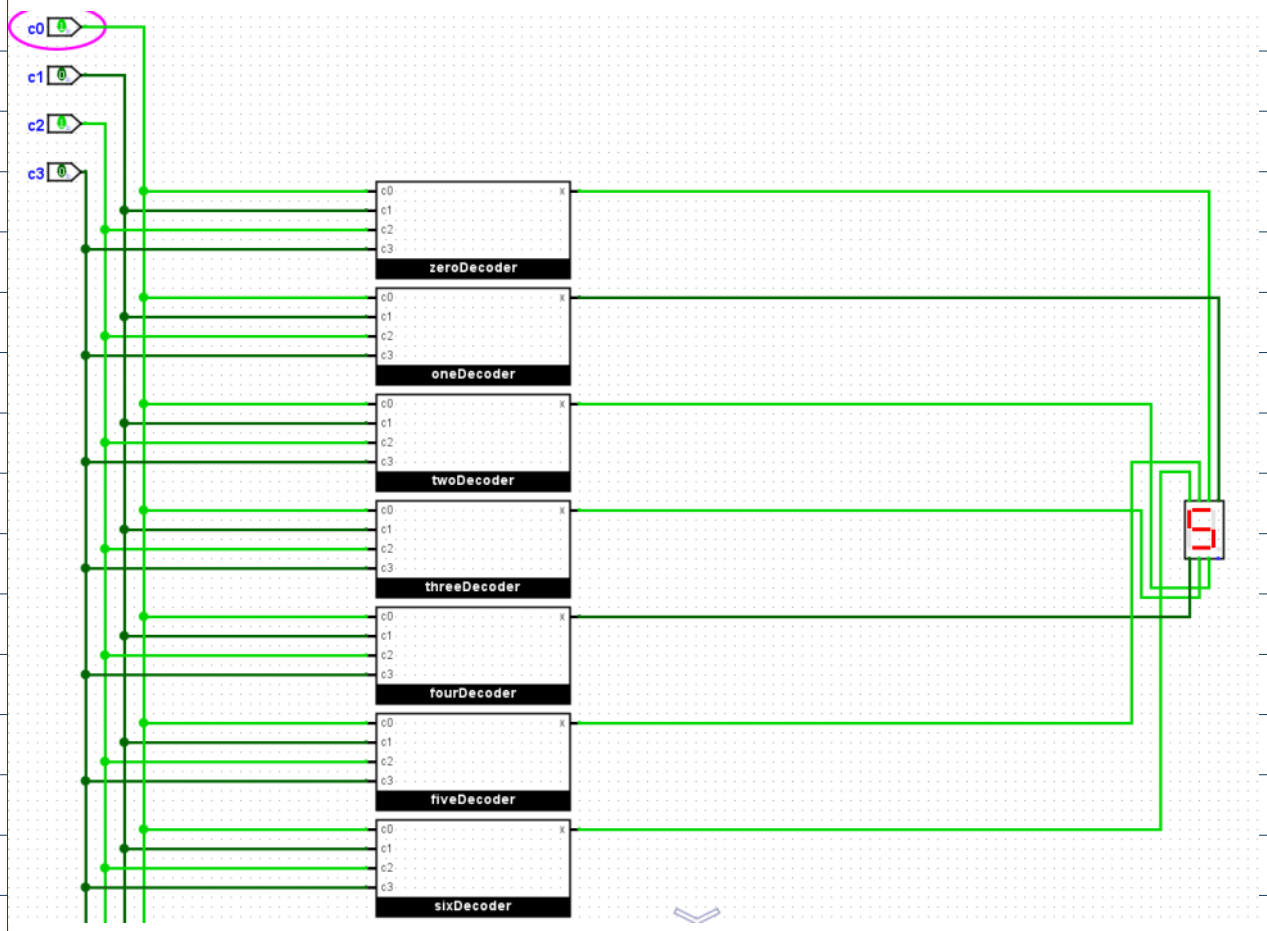
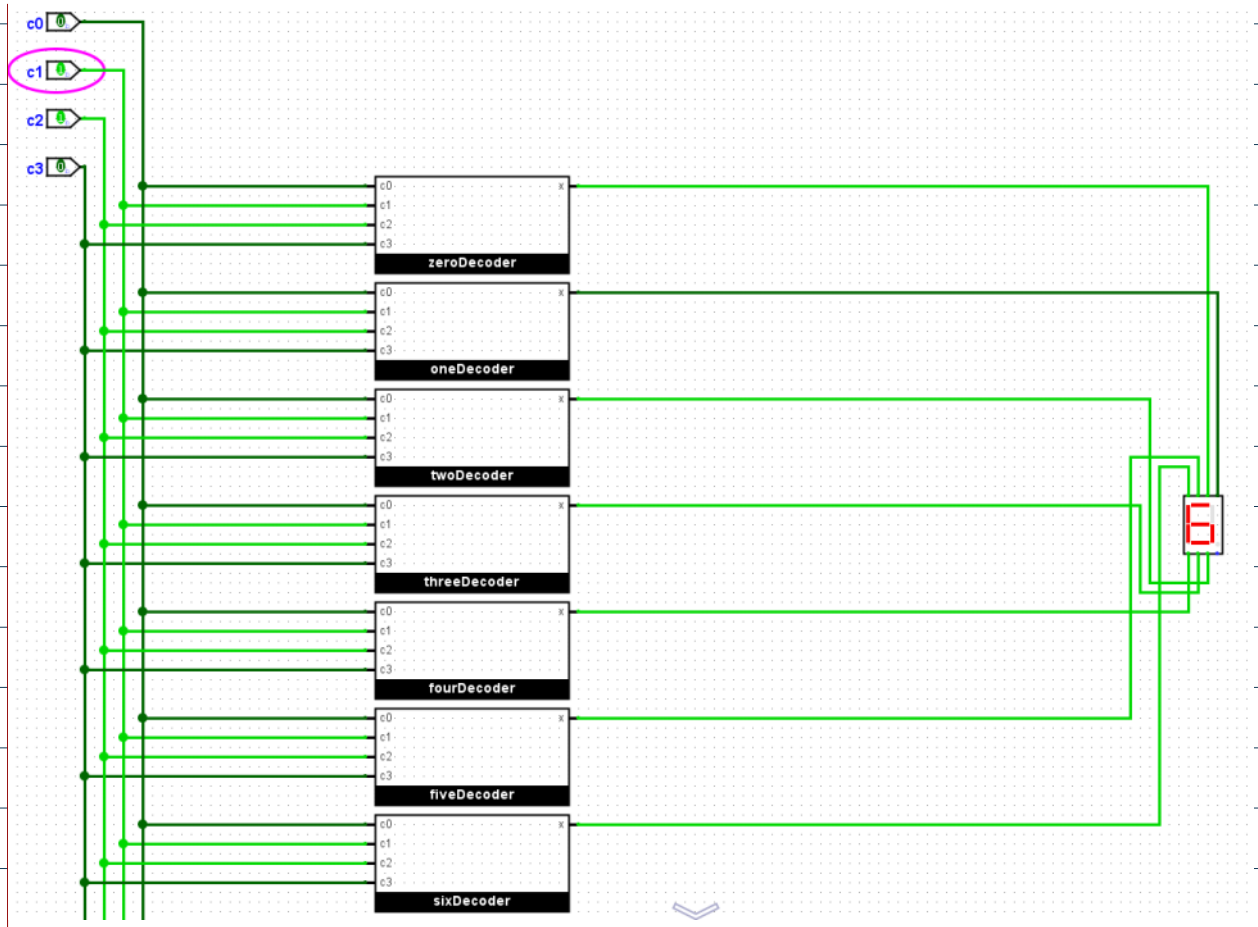
oneDecoder
twoDecoder
threeDecoder
fourDecoder
fiveDecoder
sixDecoder
4


c0
c1
c2
c3
zeroDecoder
oneDecoder
twoDecoder
threeDecoder
fourDecoder
fiveDecoder
sixDecoder
5


c0
c1
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c3
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oneDecoder
twoDecoder
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fourDecoder
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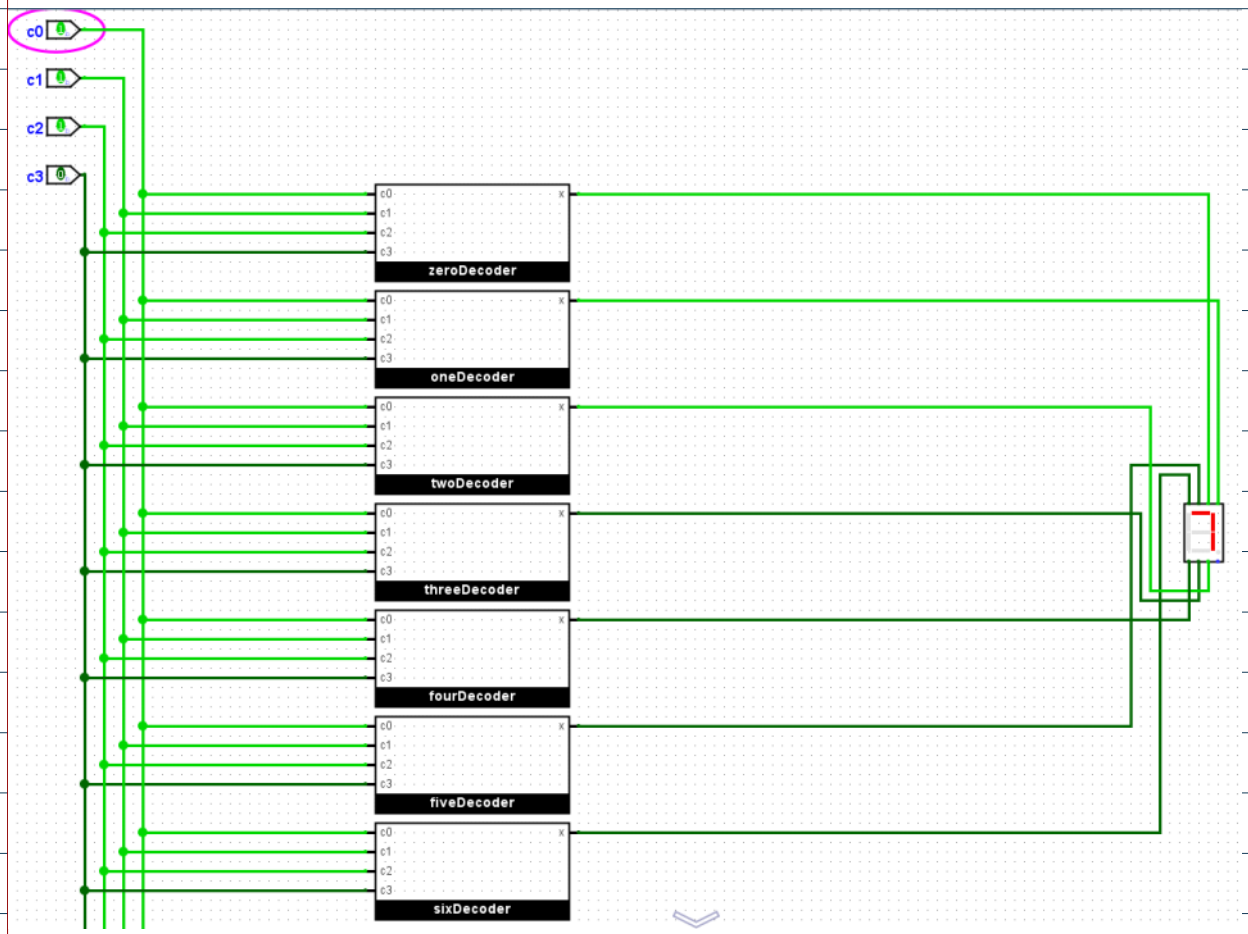
sixDecoder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c2
c3
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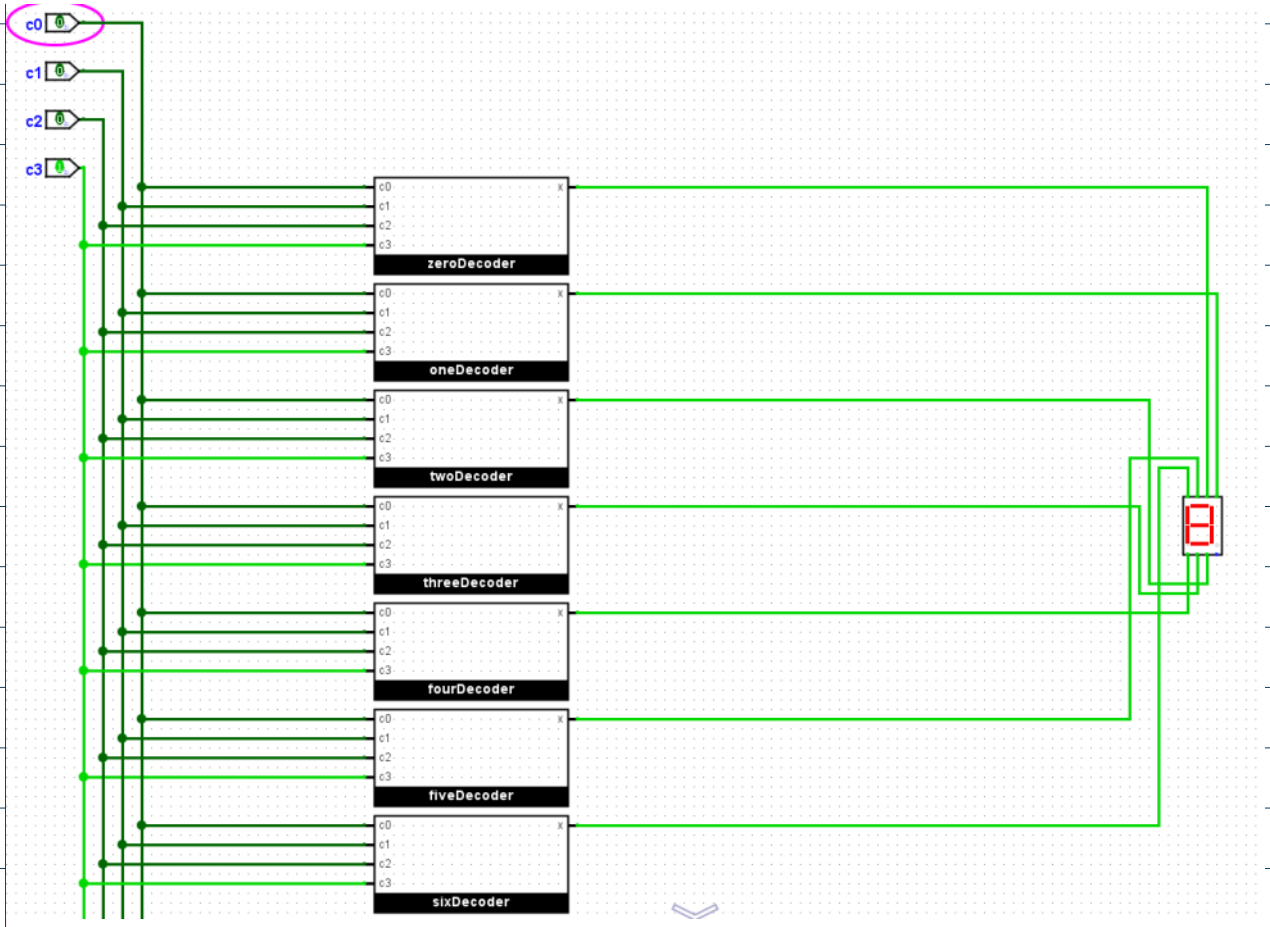
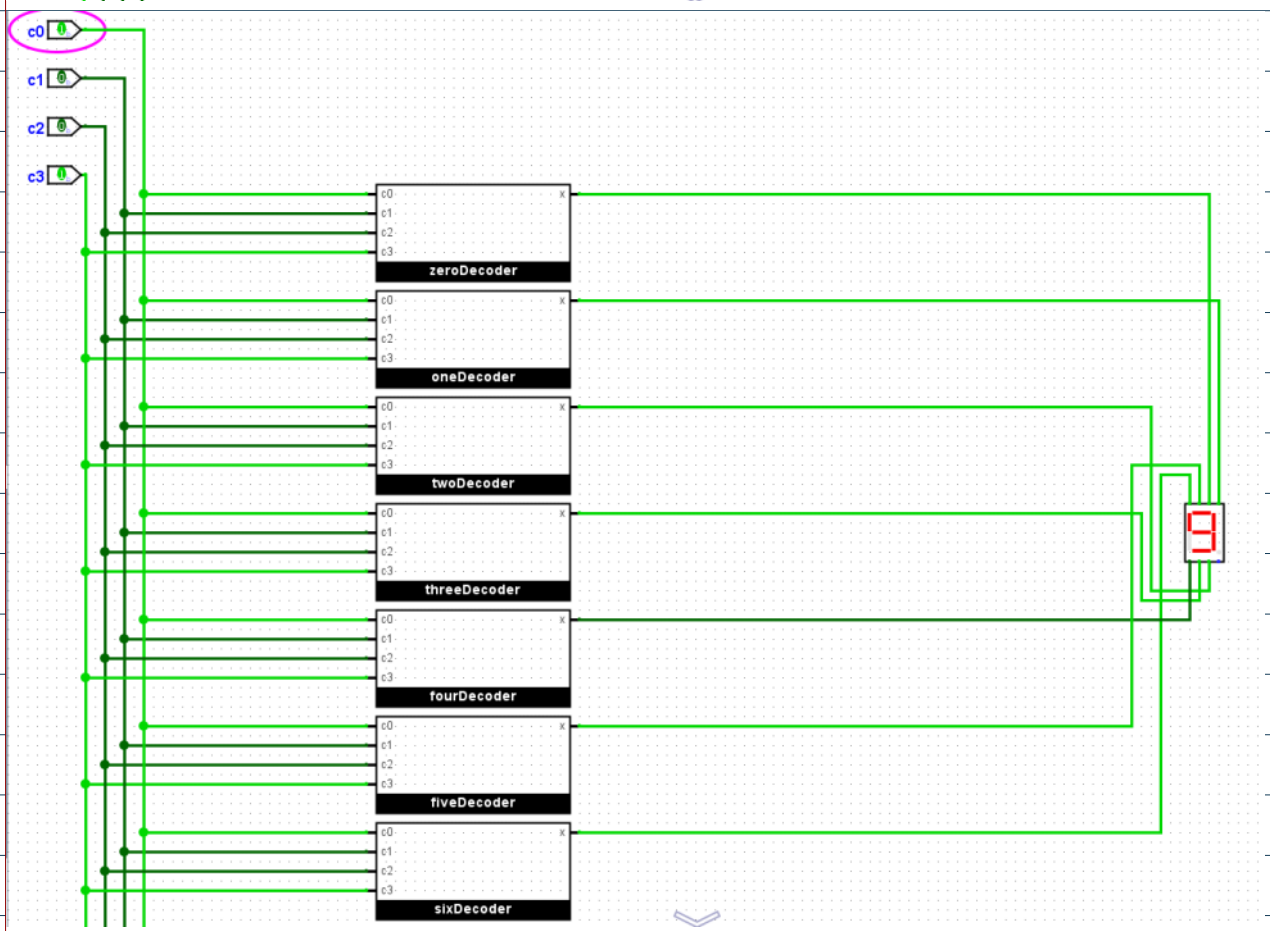
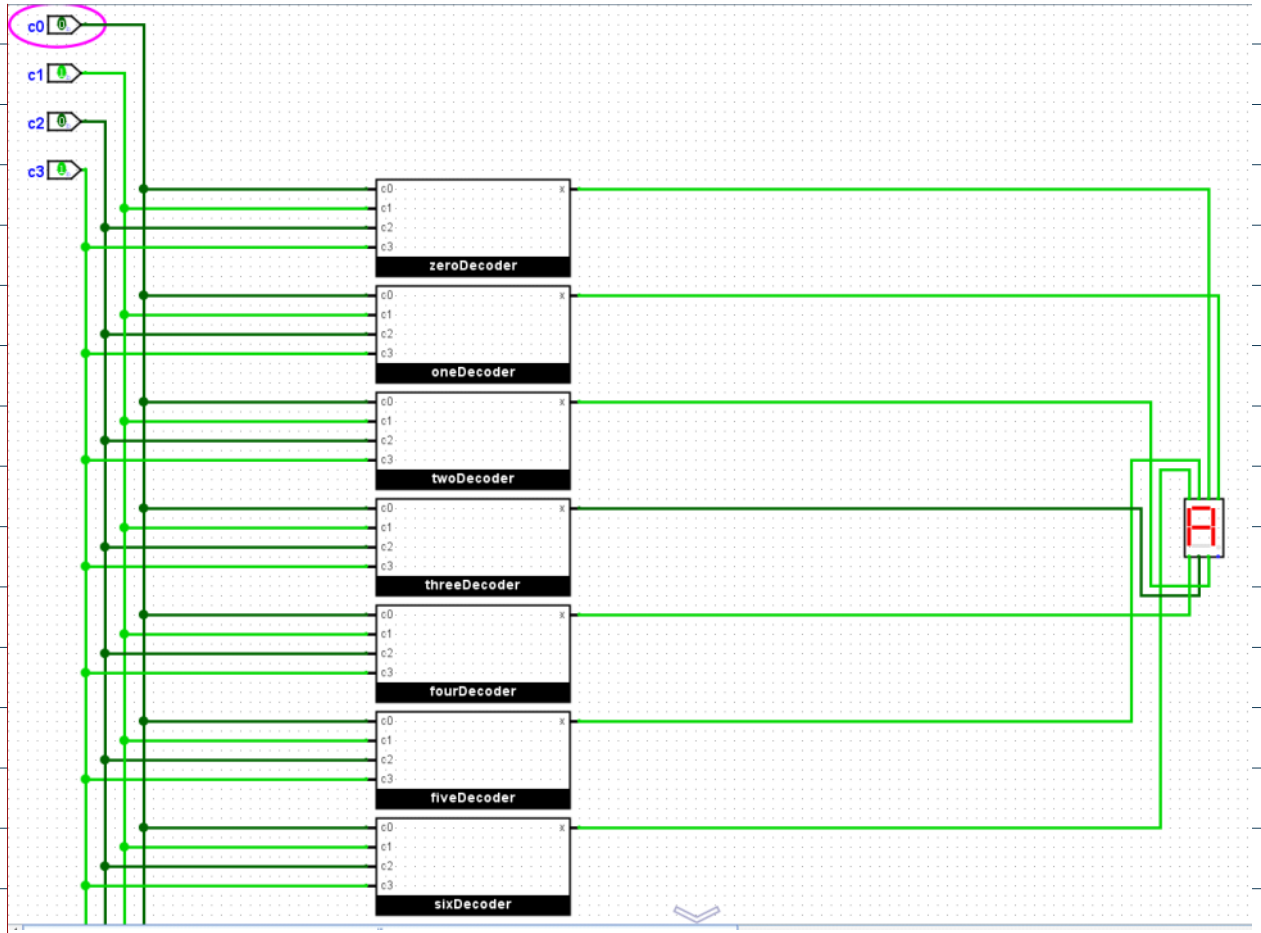
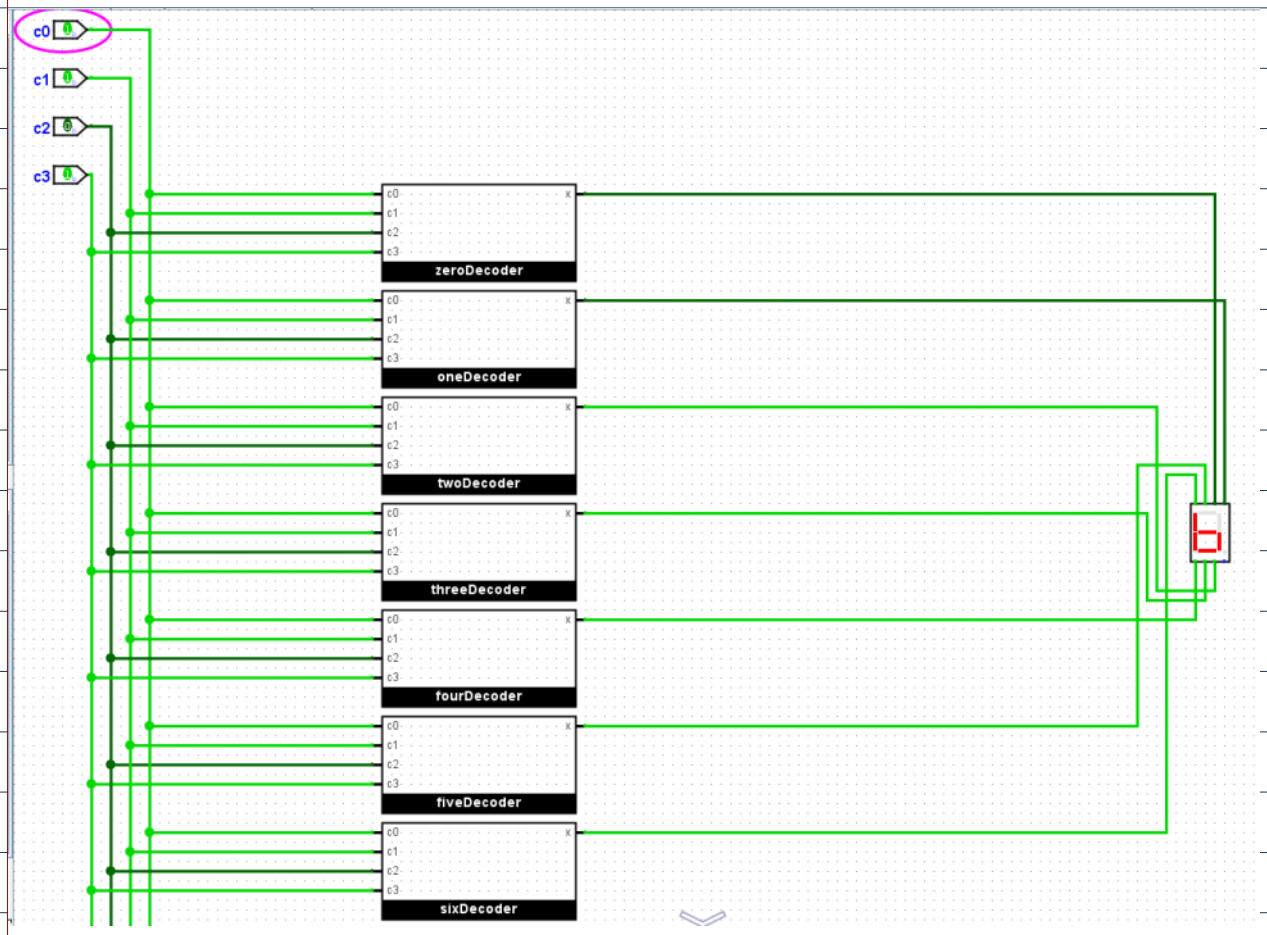
oneDecoder
twoDecoder
threeDecoder
fourDecoder
fiveDecoder
sixDecoder


c0
c1
c2
c3
zeroDecoder
oneDecoder
twoDecoder
threeDecoder
fourDecoder
fiveDecoder
sixDecoder
8


c0
c1
c2
c3
zeroDecoder
oneDecoder
twoDecoder
threeDecoder
fourDecoder
fiveDecoder
sixDecoder
9


c0
c1
c2
c3
zeroDecoder
oneDecoder
twoDecoder
threeDecoder
fourDecoder
fiveDecoder
sixDecoder
A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c1
c2
c3
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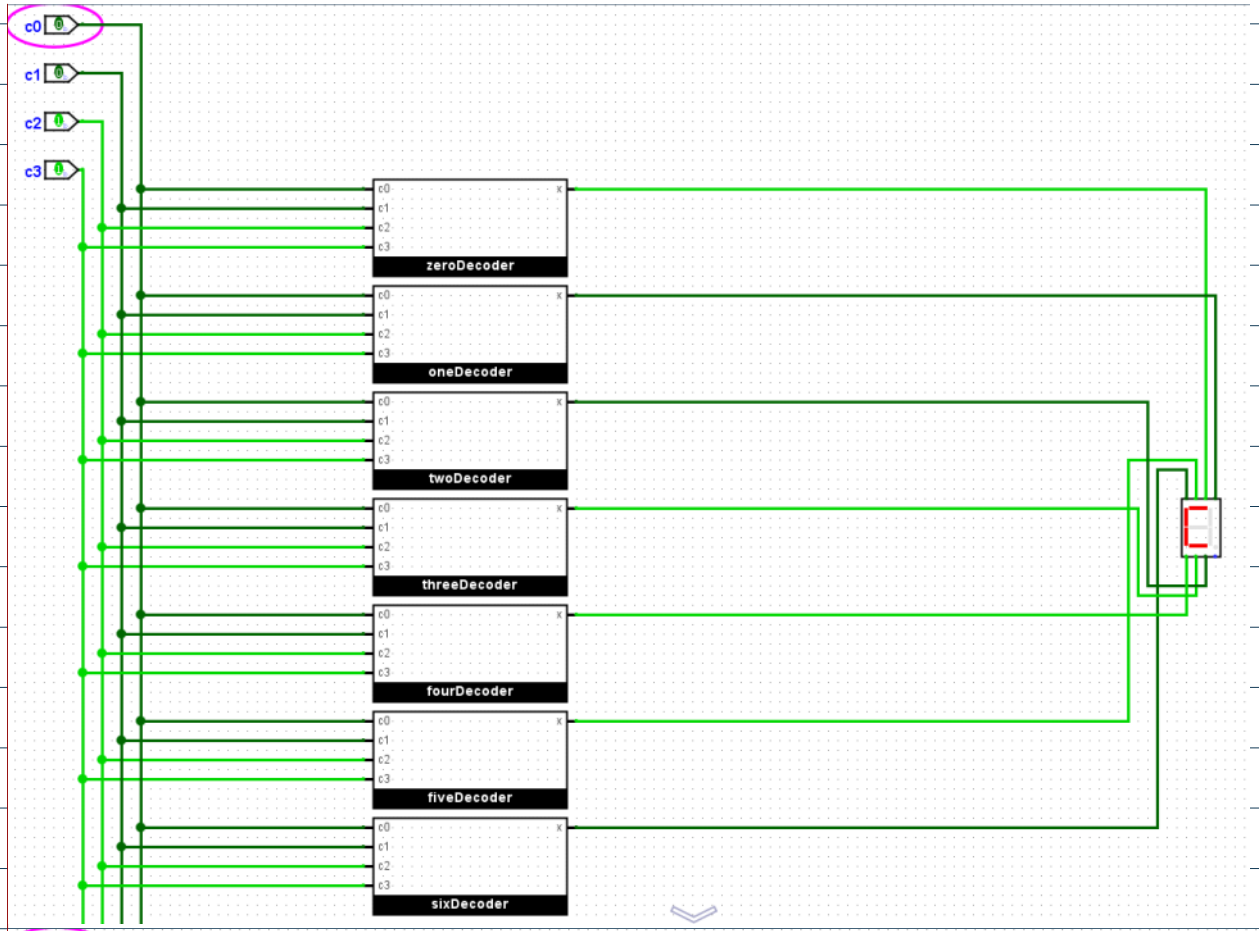
oneDecoder
twoDecoder
threeDecoder
fourDecoder
fiveDecoder
sixDecoder
b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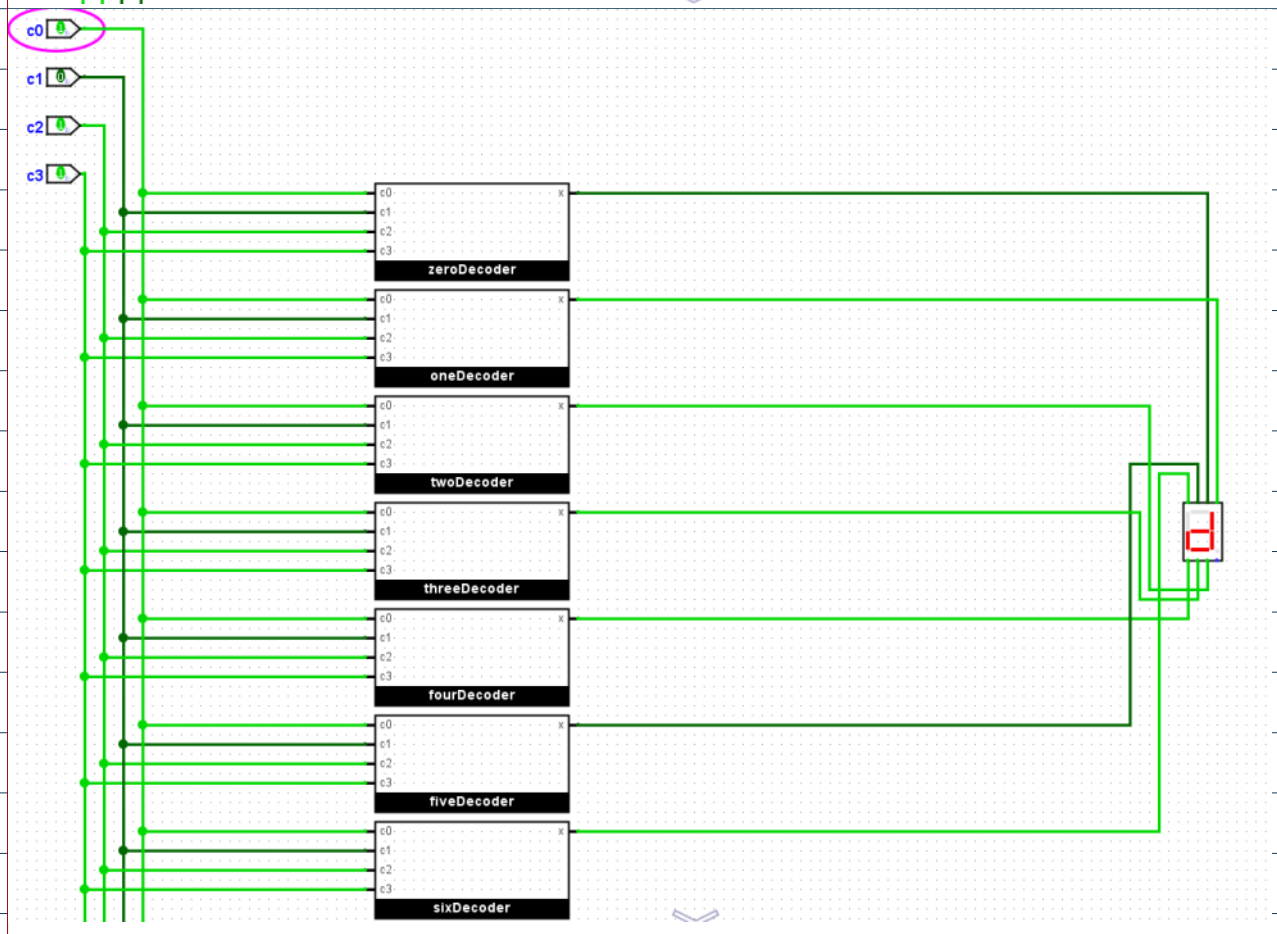
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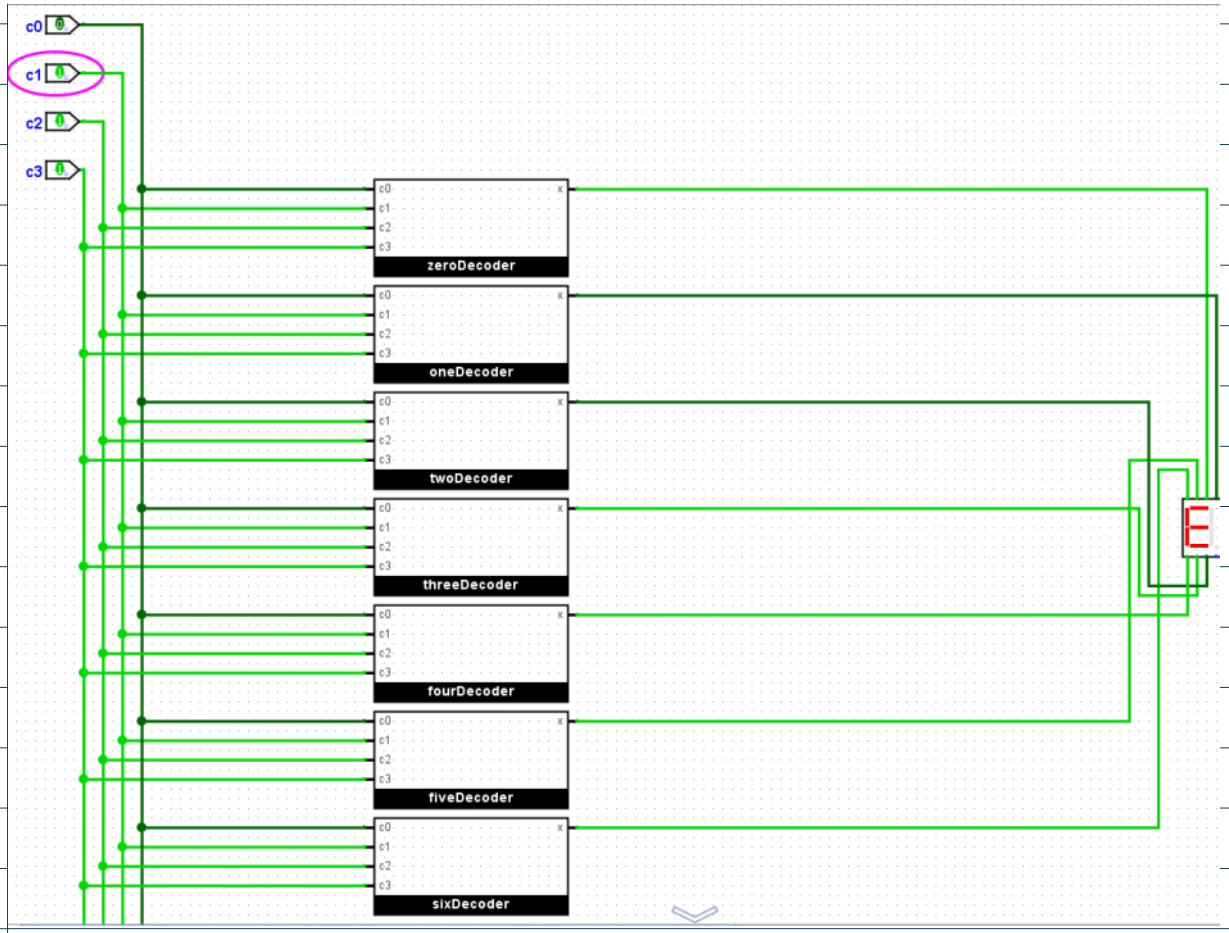
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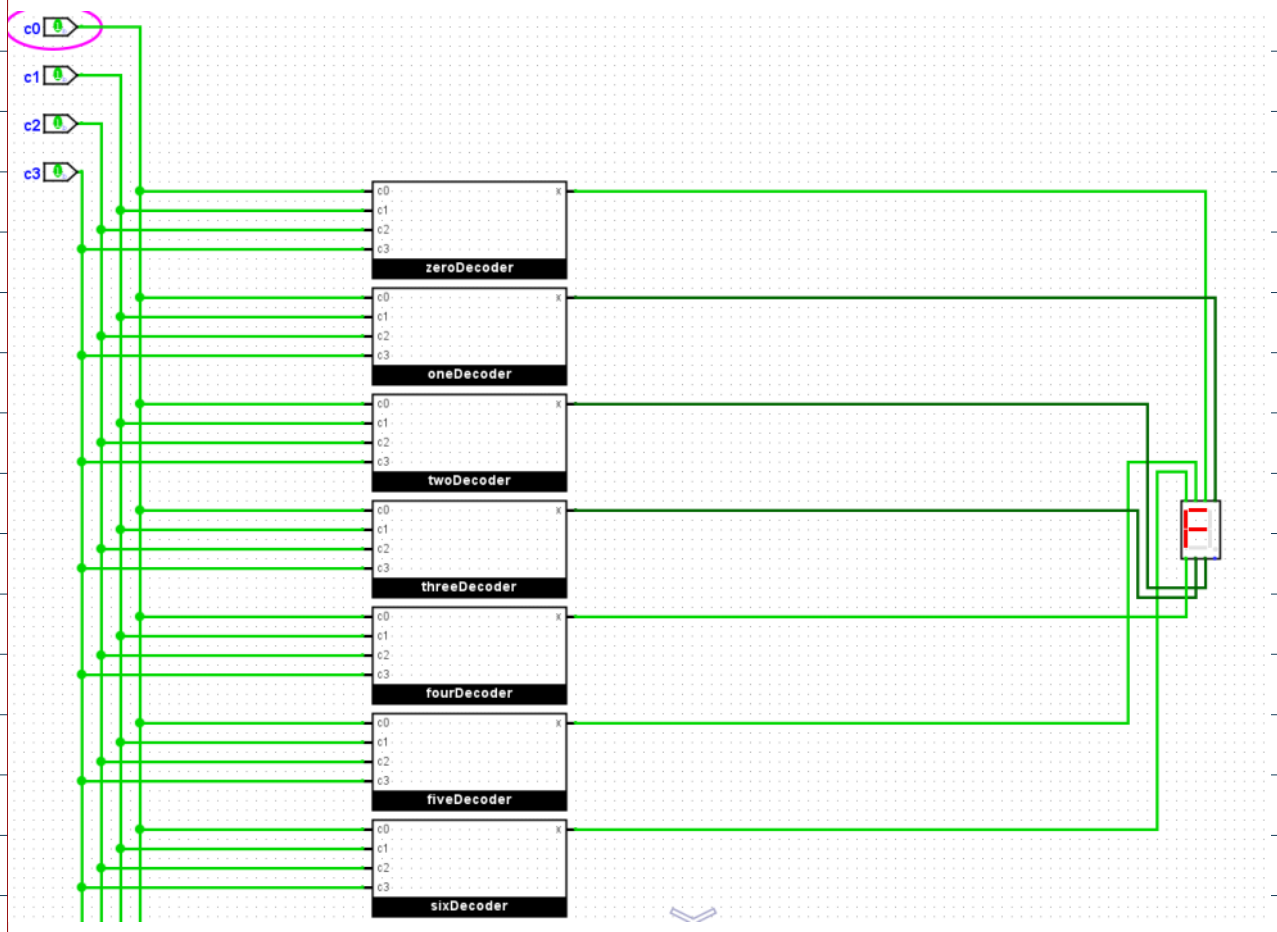
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