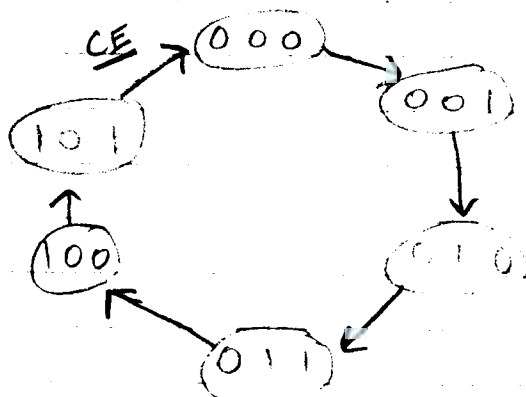


Mod 6 Counter

Q_2	Q_1	Q_0	N_2	N_1	N_0	CE
0	0	0	0	0	1	0
0	0	1	0	1	0	0
0	1	0	0	1	1	0
0	1	1	1	0	0	0
1	0	0	1	0	1	0
1	0	1	0	0	0	1
	1	0	0	0	0	0
	1	1	0	0	0	0



$$CE = Q_2 Q_1' Q_0$$

$$N_1 = Q_2' Q_1' Q_0 + Q_2' Q_1 Q_0'$$

$$N_2 = Q_2 Q_1' Q_0' + Q_2' Q_1 Q_0$$

Q_1, Q_0	$Q_2 = 0$	$Q_2 = 1$
00		
01	1	
11		
10	1	

Q_1, Q_0	$Q_2 = 0$	$Q_2 = 1$
00		1
01		
11	1	
10		

$$N_0 = Q_1' Q_0' + Q_2' Q_0'$$

Q_1, Q_0	$Q_2 = 0$	$Q_2 = 1$
00	1	1
01		
11		
10	1	

Mod 10 counter

	Q3 Q2			
Q1 Q0	00	01	11	10
00				
01		1	1	
11				
10		1	1	

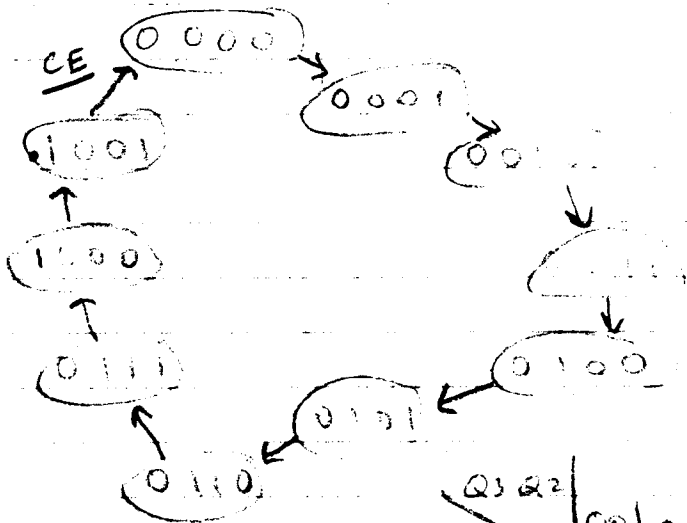
$$N1 = Q3' Q1' Q0 + Q3' Q1 Q0'$$

Q3	Q2	Q1	Q0	N3	N2	N1	N0	CE
0	0	0	0	0	0	0	1	0
0	0	0	1	0	0	0	1	0
0	0	1	0	0	0	1	0	0
0	0	1	1	0	0	1	0	0
0	1	0	0	0	1	0	1	0
0	1	0	1	0	1	1	0	0
0	1	1	0	1	0	0	0	0
0	1	1	1	1	0	0	0	0
1	0	0	0	1	0	0	1	0
1	0	0	1	0	0	0	0	0
1	0	1	0	0	0	0	0	0
1	0	1	1	0	0	0	0	0
1	1	0	0	1	0	0	1	0
1	1	0	1	0	0	0	1	0
1	1	1	0	1	0	0	0	0
1	1	1	1	1	0	0	0	0

	Q3 Q2			
Q1 Q0	00	01	11	10
00	1	1		1
01				
11				
10	1	1		

$$N0 = Q3' Q0' + Q2' Q1' Q0'$$

$$CE = Q3 \cdot Q2' \cdot Q1' \cdot Q0$$



	Q3 Q2			
Q1 Q0	00	01	11	10
00				1
01				
11		1		
10				

$$N3 = Q3 Q2' Q1' Q0' + Q3' Q2 Q1 Q0$$

	Q3 Q2			
Q1 Q0	00	01	11	10
00		1	1	
01		1		
11	1			
10		1		

$$N2 = Q3' Q2 Q1' + Q3' Q2 Q0 + Q3' Q2' Q1 Q0$$

Calculations

$$\text{preload} + 1 = \frac{50 + 10^6 \text{ hz}}{200 \text{ hz}}$$

$$\text{preload} = 249999$$