Counter

counts up/down from 0 to 2^N-1

N-bit counter w/ parallel load

Data in : N-bit $\vec{D}$

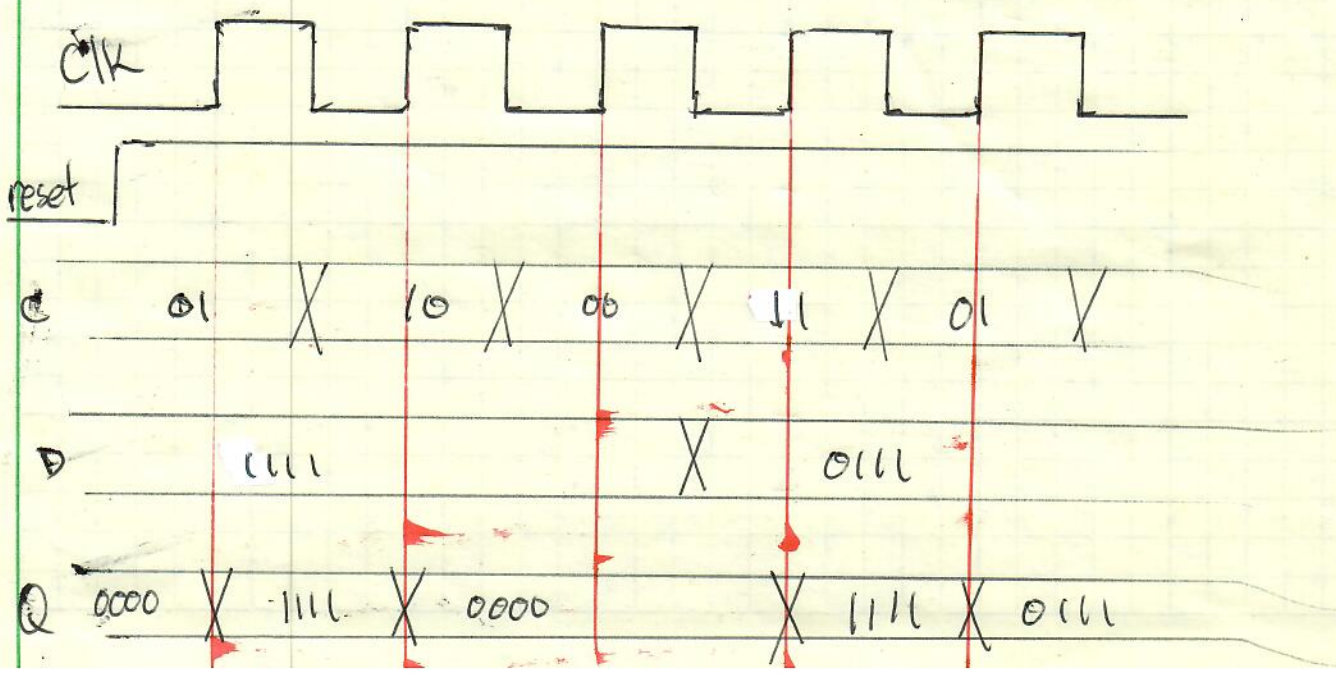
Data out : N-bit $\vec{Q}$

Control : 2-bit $\vec{C}$

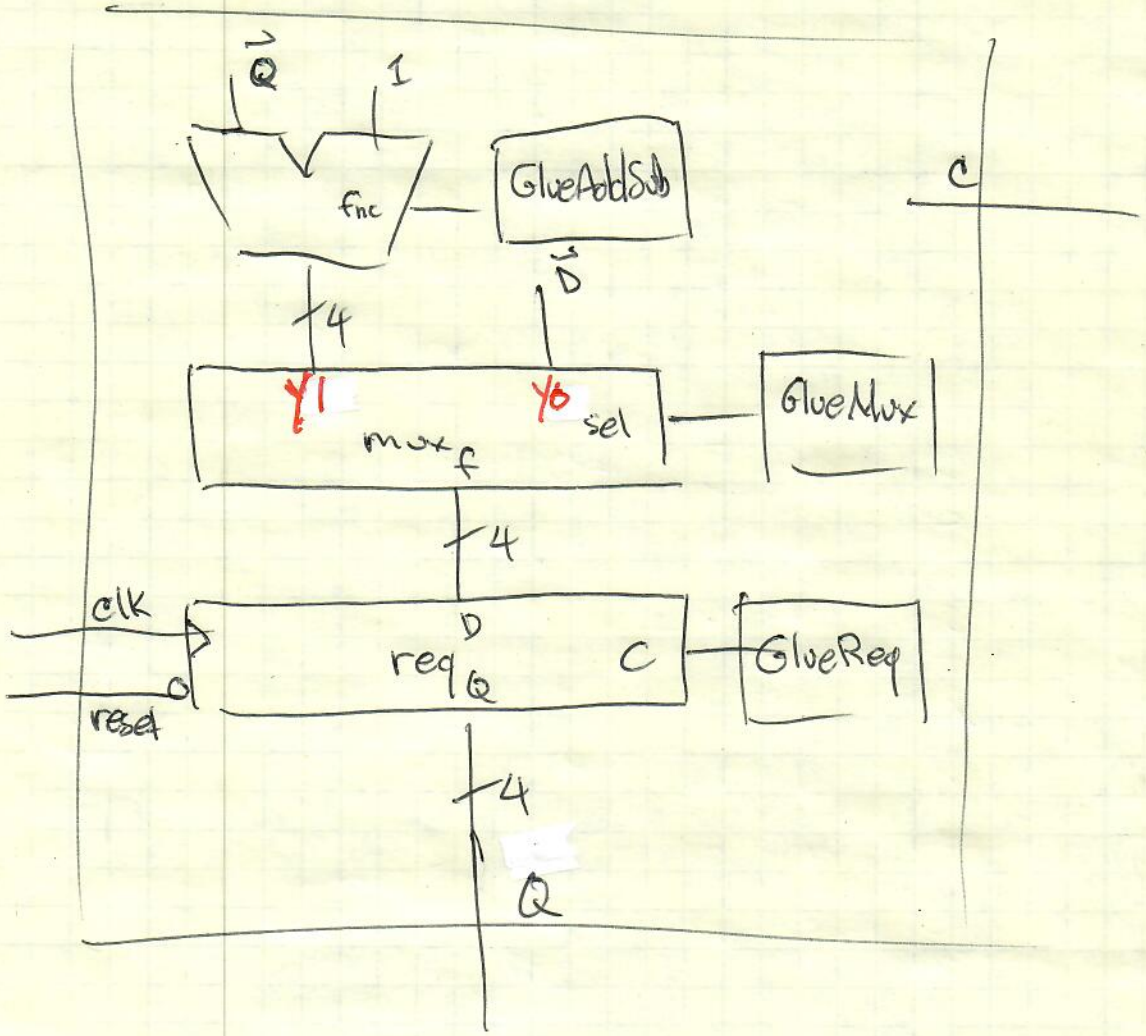
Status : None (for now)

Behavior

reset	clk	C	D	Q^+	comment
0	x	x	x	$\vec{0}$	
1	0, 1, ↓	x	x	Q	
1	↑	00	x	Q	hold
1	↑	01	D	D	load
1	↑	10	x	Q+1	up
1	↑	11	x	Q-1	down



Internal organization of 4-bit



C	GlueAddSub	GlueMux	GlueReg
0 0	X	X	0
0 1	X	0	1
1 0	0	1	1
1 1	1	1	1

Add logic for rollover

rollover = 1 when ($\vec{Q}$ = 1111 and C = 10) or
($\vec{Q}$ = 0000 and C = 11)