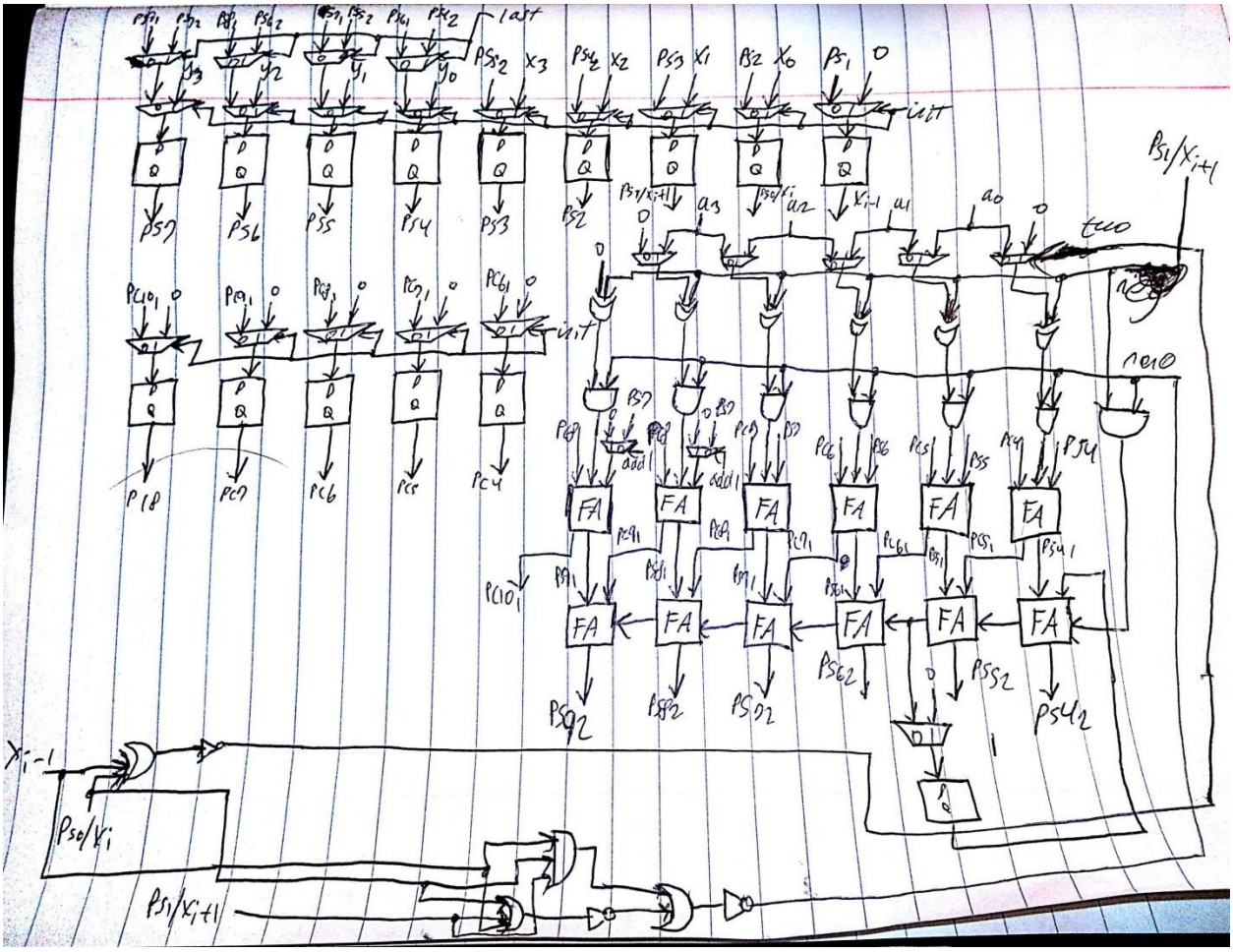
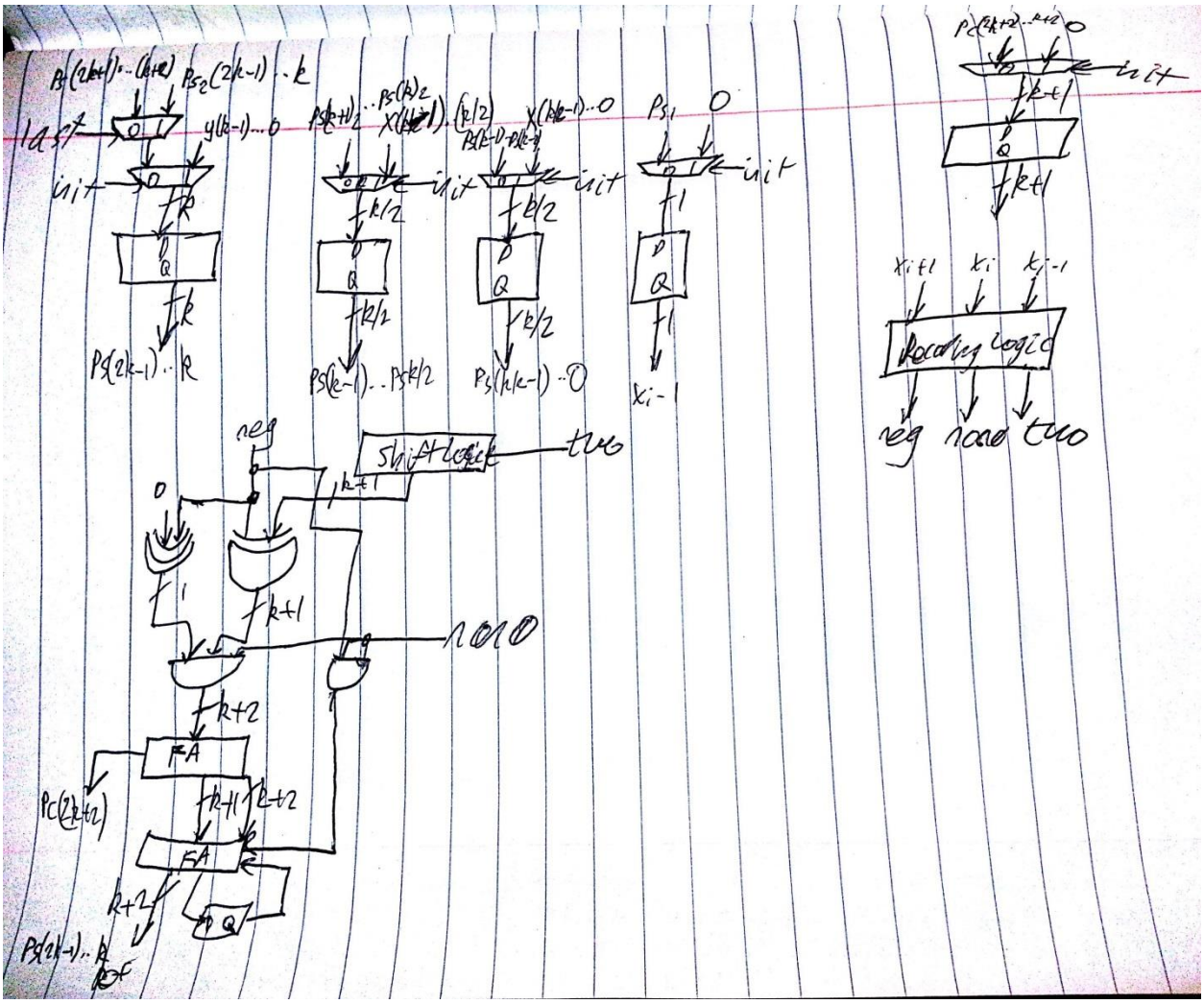
Jeremy Barthélemy
ECE 645
Hw. 5

Problem 1

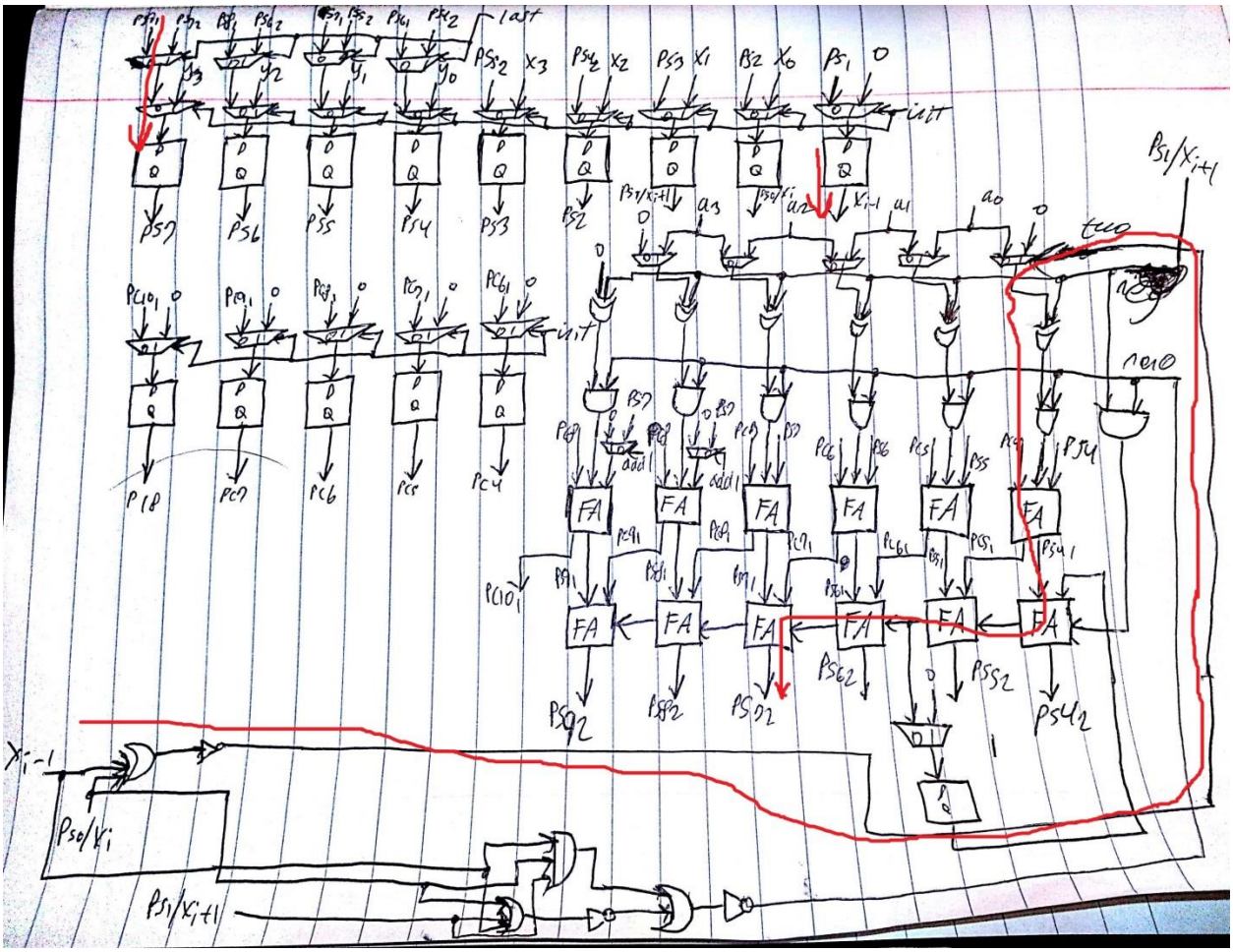
1.(in folder Task1)

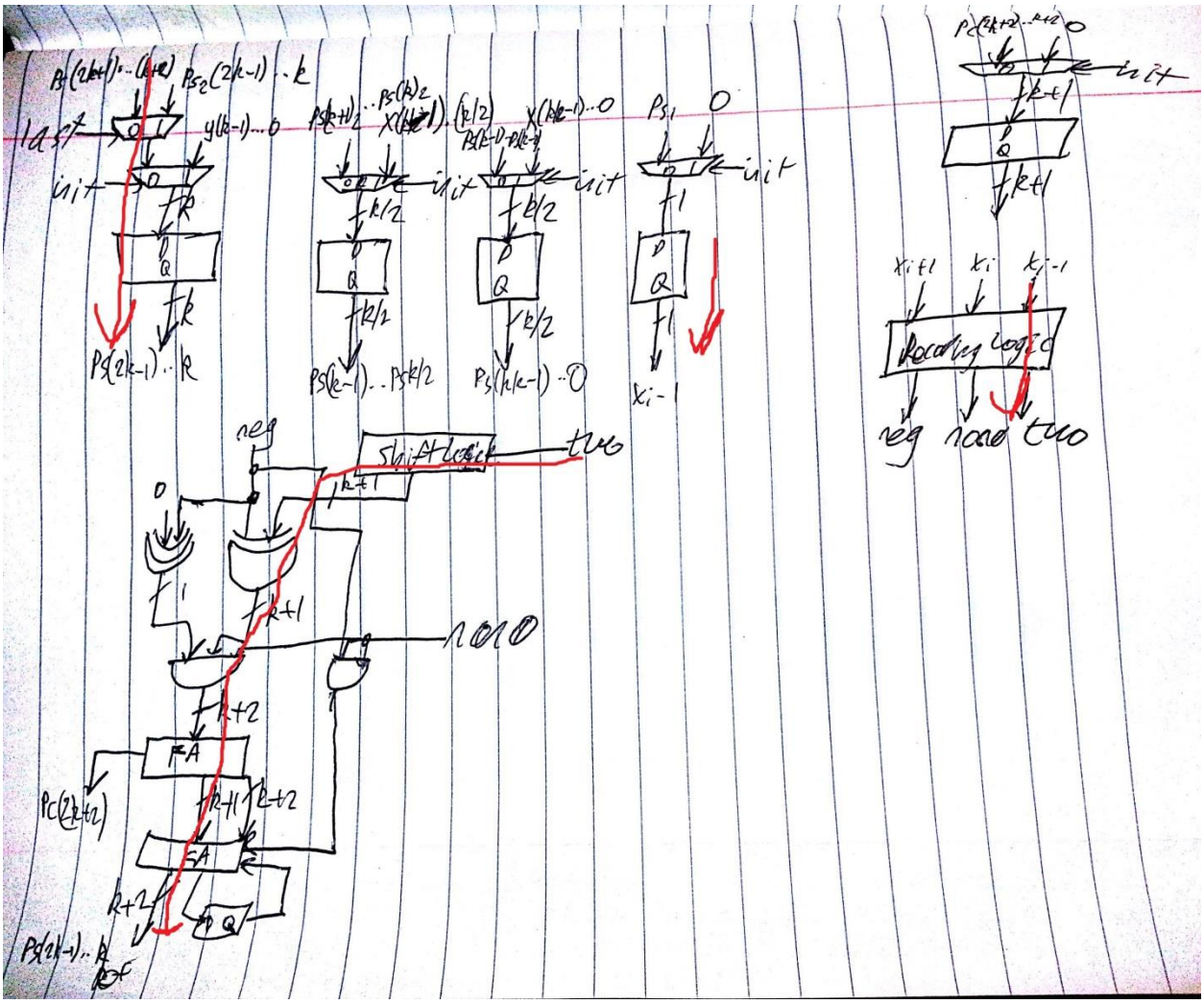


2. (also in Task2 folder)



3. (also in folder Task3)





4.

a. $T_{CLK} = d_{FF} + d_{XOR} + d_{NOT} + d_{muxs->out} + d_{XOR} + d_{AND} + d_{FAx->s} + d_{FAx->Cout} + 2*d_{FACin->Cout} + dFAcin->s + 2*d_{muxx->out} + t_{setup}$

b. Minimum Latency = $(k/2+1) * T_{CLK}$

c. Maximum Throughput (Additions/Second) = $1/((k/2+1)*T_{CLK})$

5. Latency will decrease by half for the radix-4 version, but T_{CLK} will also increase because of this, however, there will still be a performance gain as $T_{CLK-4}/T_{CLK-2} < 2$. Throughput also increases for radix-4, but will be somewhere between 1 and 2.

Problem 2(also in folder in excel file)

a		0	0	1	1	0	1					
x		0	0	1	1	0	0					
4ps(0)		0	0	0	0	0	0					
4pc(0)		0	0	0	0	0	0					
ps(0)		0	0	0	0	0	0	0	0			
pc(1)		0	0	0	0	0	0	0				
+z0a		1	1	0	0	1	1					
4ps(1)		1	1	0	0	1	1	0	0			
4pc(1)	0	0	0	0	0	0	0	0				
ps(1)		1	1	1	1	0	0	1	1	0	0	
pc(1)		0	0	0	0	0	0	0	0			
+z1a		0	0	1	1	0	1					
4ps(2)		1	1	0	0	0	1					
4pc(2)	0	0	1	1	0	0	0					
ps(2)		1	1	1	1	0	0	0	1	1	1	0	0
pc(2)		0	0	0	1	1	0	0	0			
+z2a		0	0	1	1	0	1					
4ps(3)		1	1	0	0	0	1					
4pc(3)	0	0	1	1	0	0	0					
ps(3)		1	1	1	1	0	0	0	1	1	1	0	0
pc(3)		0	0	0	1	1	0	0	0			
	1	0	0	0	0	1	0	0	1	1	1	0	0