input4	input3	input2	input1	output	
0	0	0	0	0	0
0	0	0	1	1	1
0	0	1	0	0	2
0	0	1	1	1	3
0	1	0	0	0	4
0	1	0	1	1	5
0	1	1	0	1	6
0	1	1	1	1	7
1	0	0	0	0	8
1	0	0	1	1	9
1	0	1	0	1	10
1	0	1	1	1	11
1	1	0	0	0	12
1	1	0	1	1	13
1	1	1	0	1	14
1	1	1	1	1	15

K-Map

	3'	3		3'	
2'	0	0	0	0	1'
	1	1	1	1	1
2	1	1	1	1	
	0	1	1	1	1'
	4'		4		

Sum of Products: 1+(2*3)+(2*4)

Mealy

Moore

MOORE

inputs → **next State Logic** — Excitation → **state register** — Current State → **output logic** → Output

CLK →

Mealy Model

Inputs → **next stage logic** — Excitation → **State Register** — Current State → **output Logic** → outputs

CLK →

synchronizer

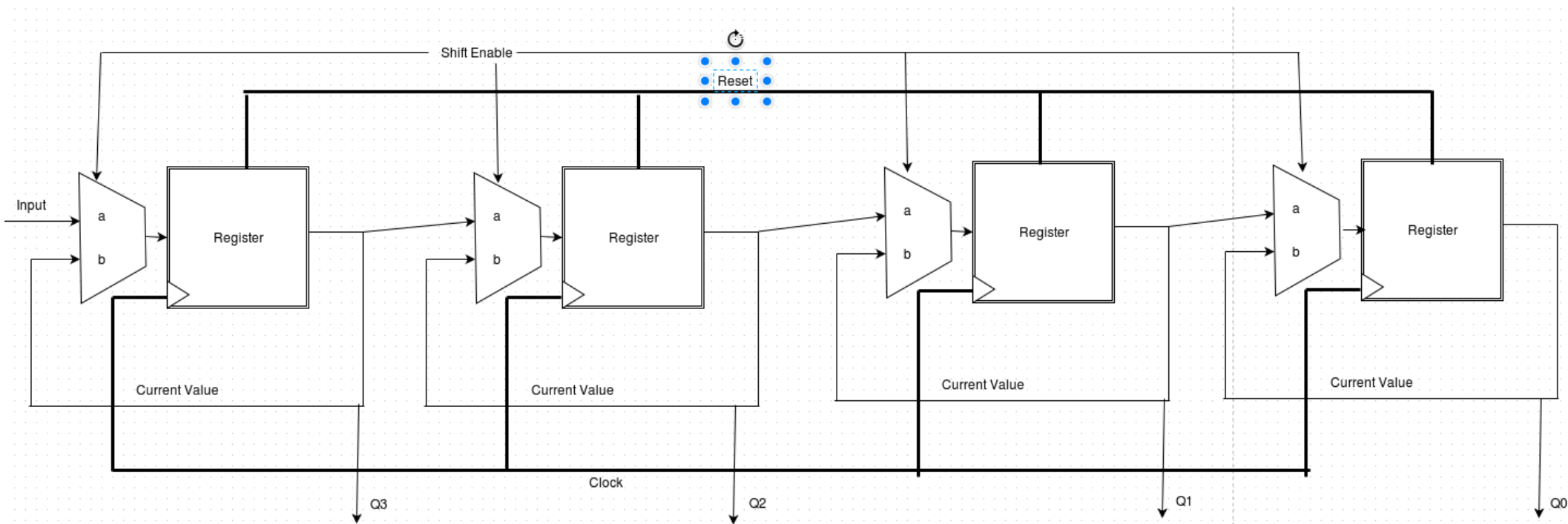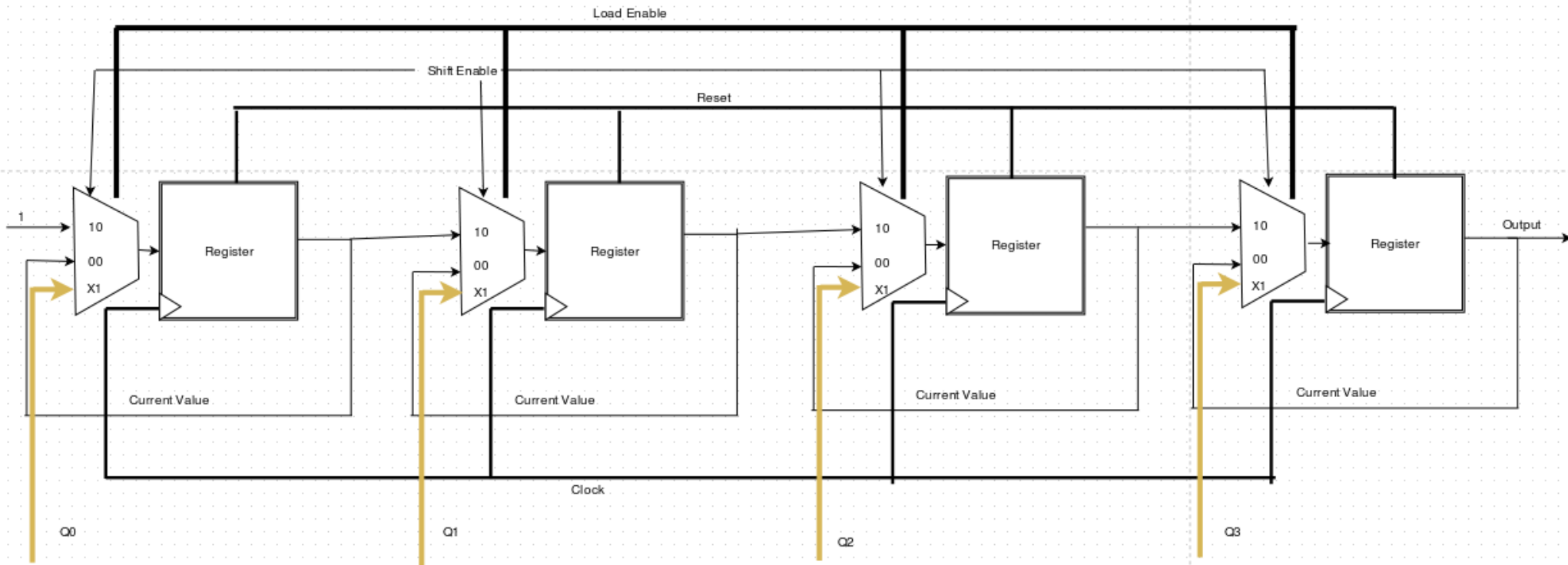signal → D Q [**reg**] d1 → D Q [**reg**] d2 →
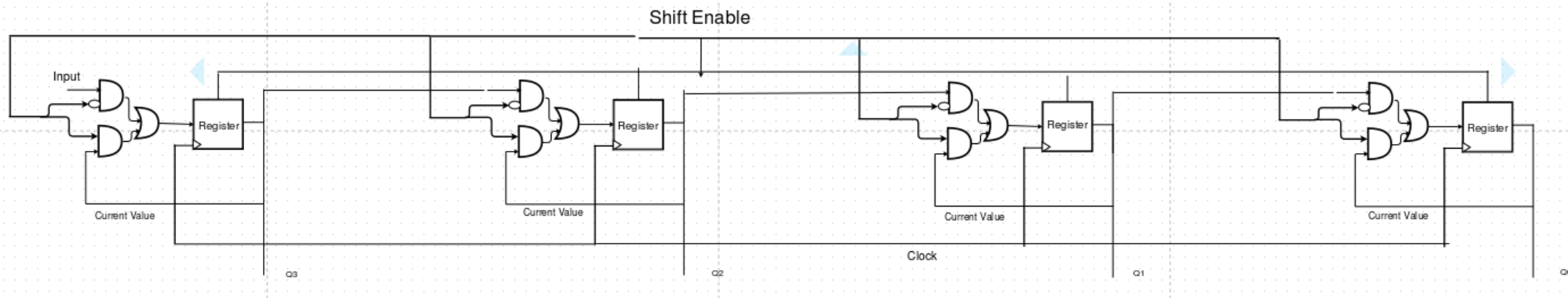
Clk

Clk

nRst

nRst
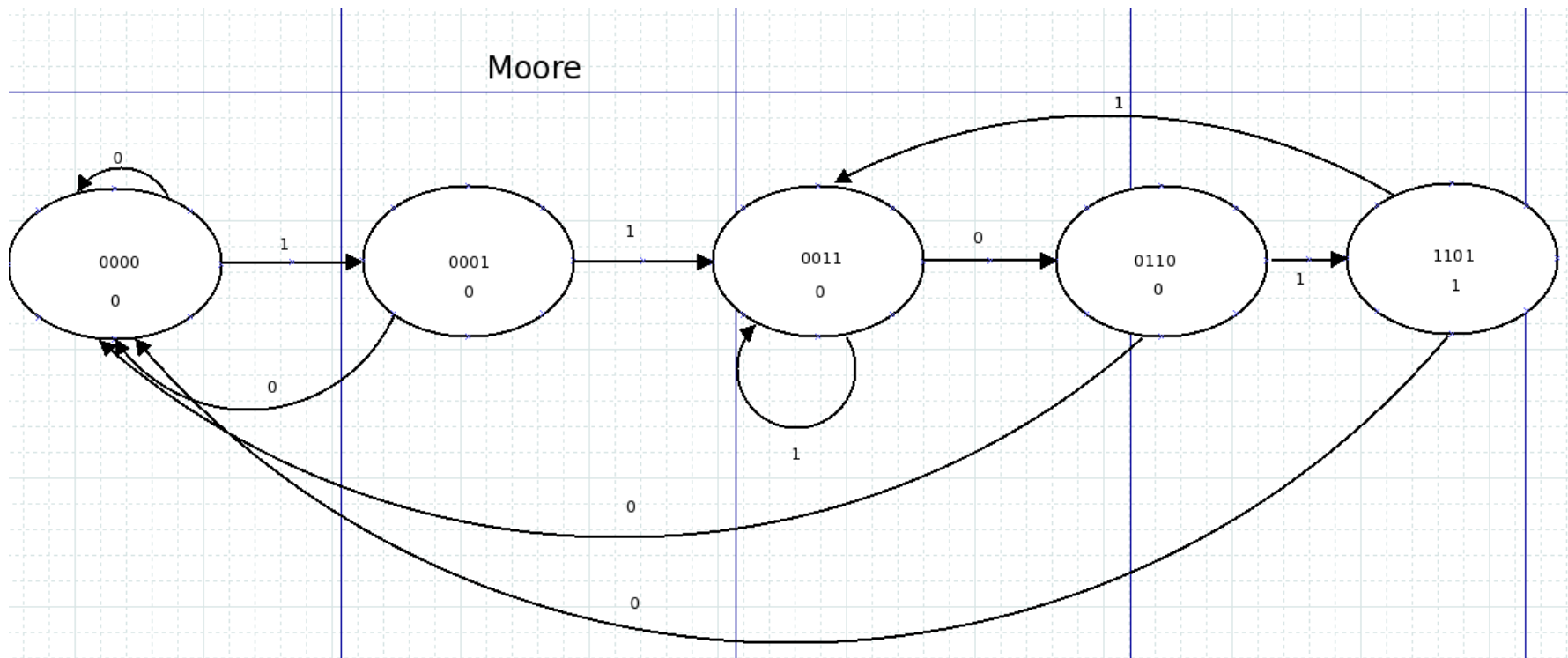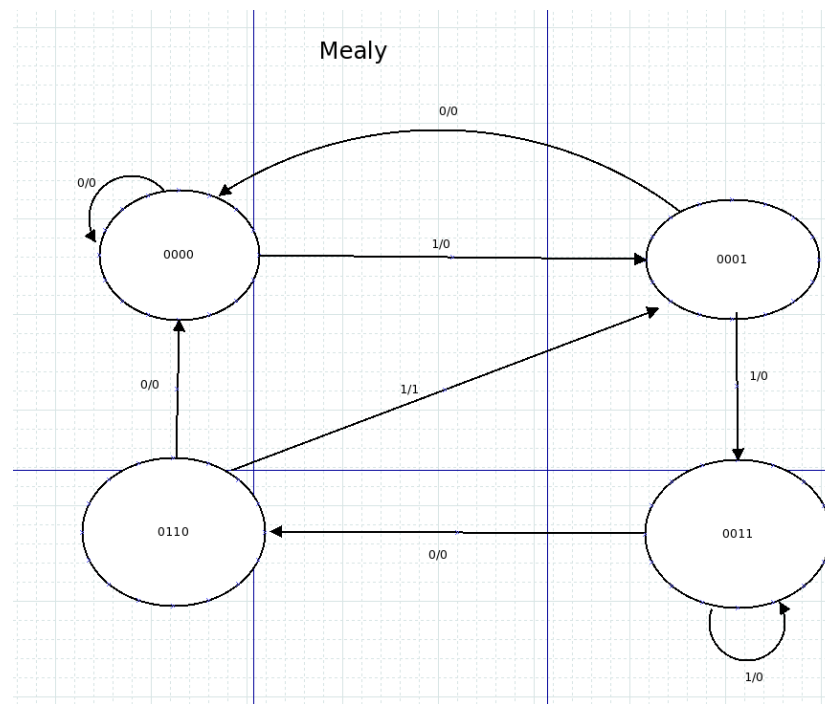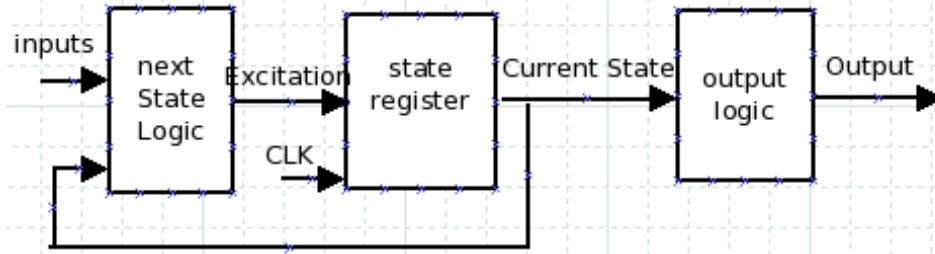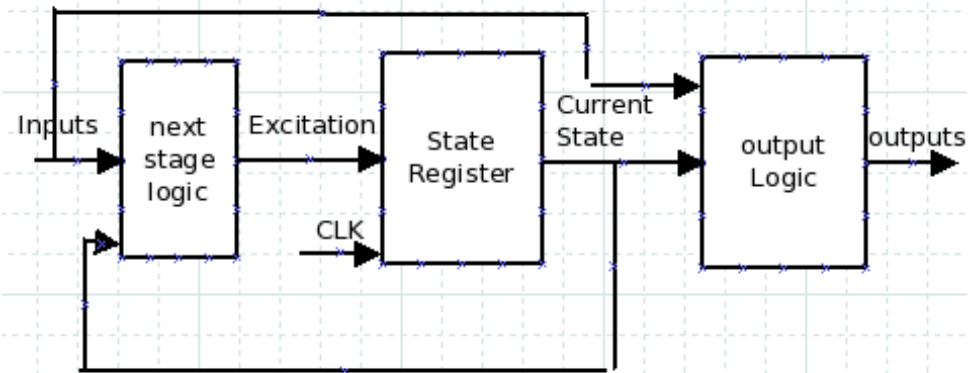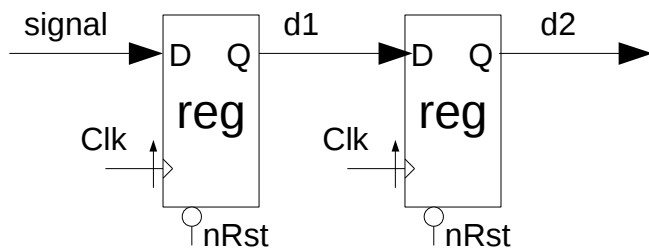
RTL for Serial to Parallel

RTL for Parallel to Serial

Schematic for Serial to Parallel

Schematic for Parallel to Serial