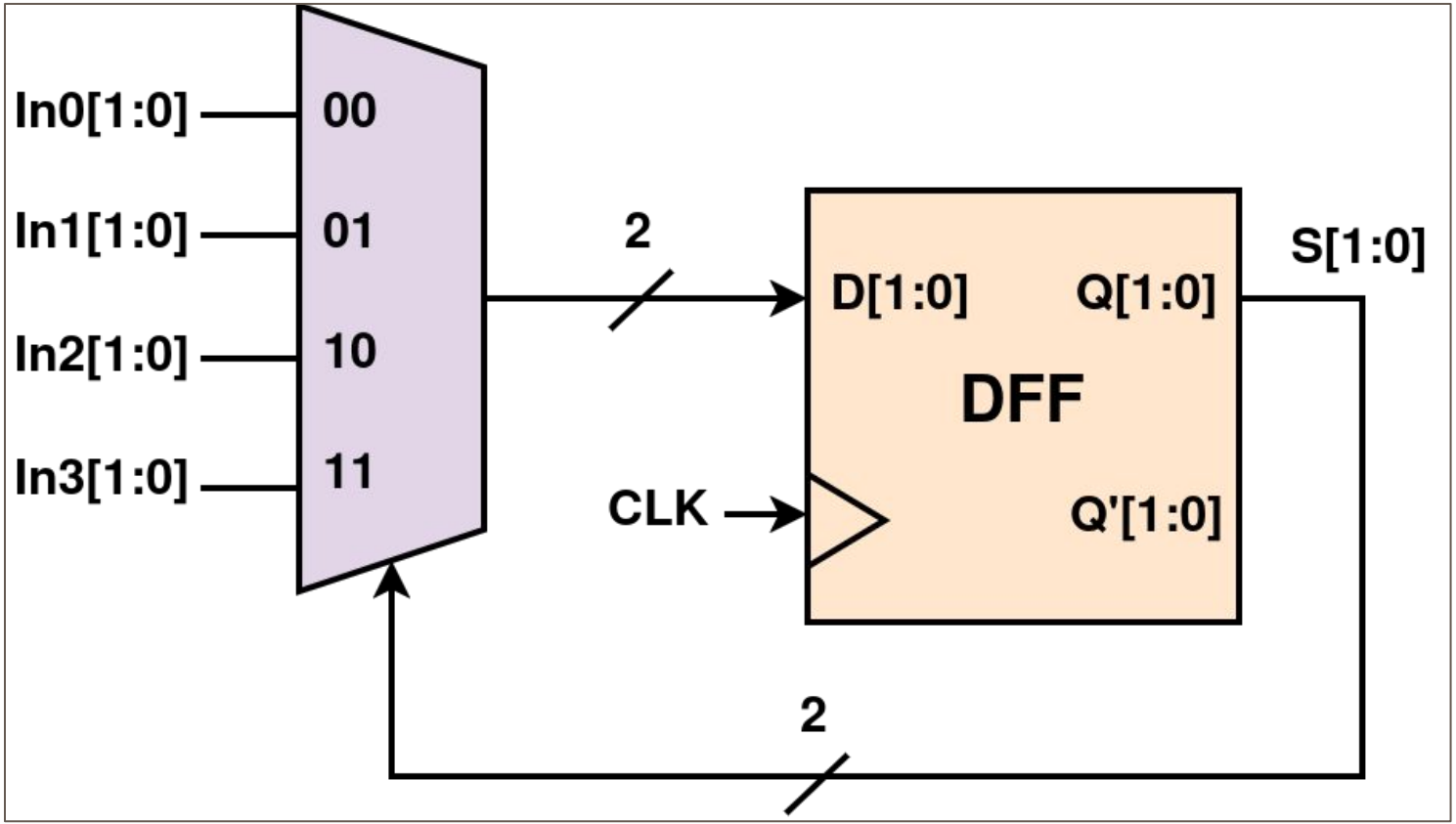
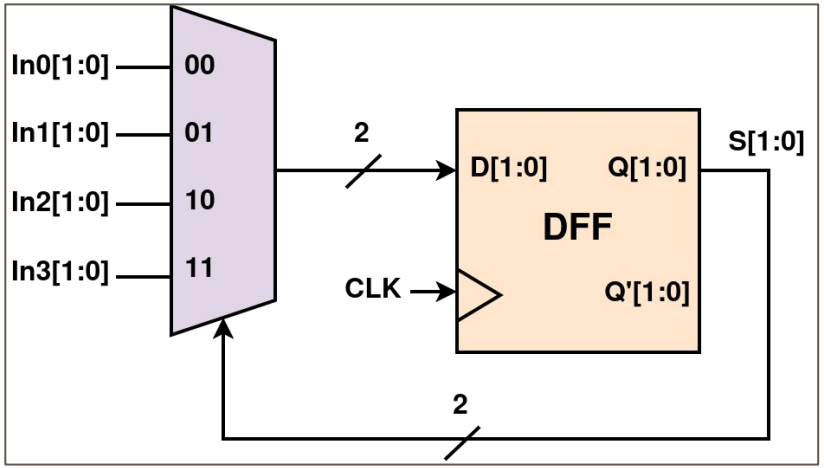
Self-Selecting Mux

Self-Selecting Clocked Mux!!



Some Questions to Ask

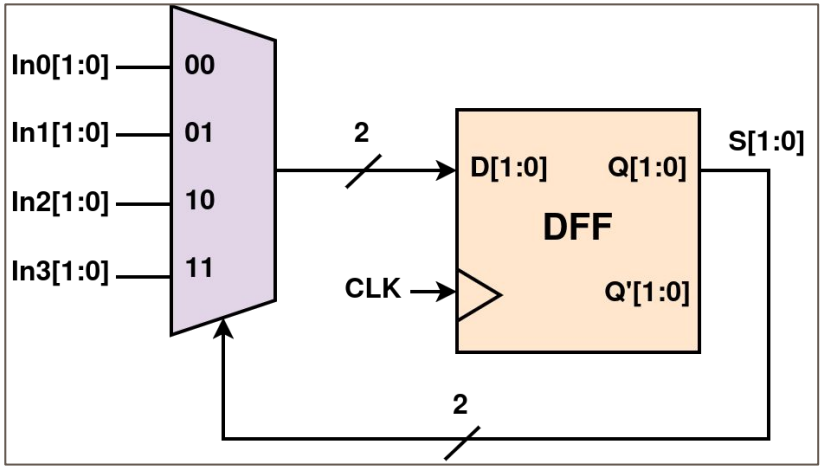


1. **What is a DFF?**
2. **What is CLK?**
3. **What is the diagram even doing?**
4. **How many states exist in this circuit?**
5. **What are those states?**

State Assignments

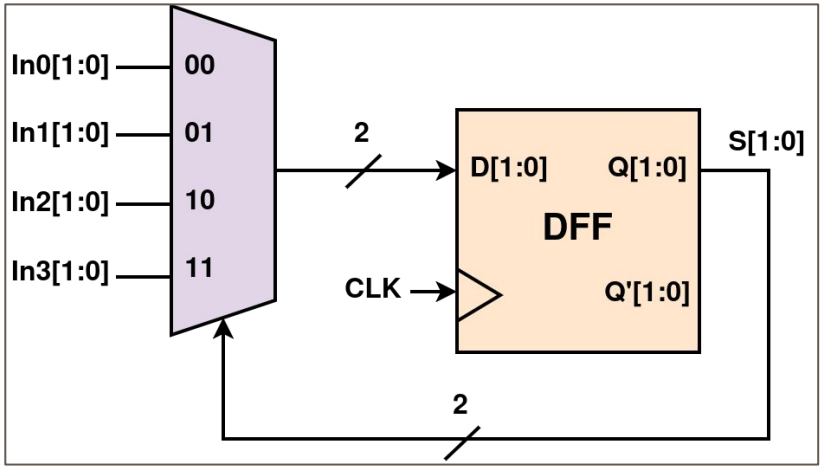
Build a State Assignment Table

State Bits		State Name
?	?	



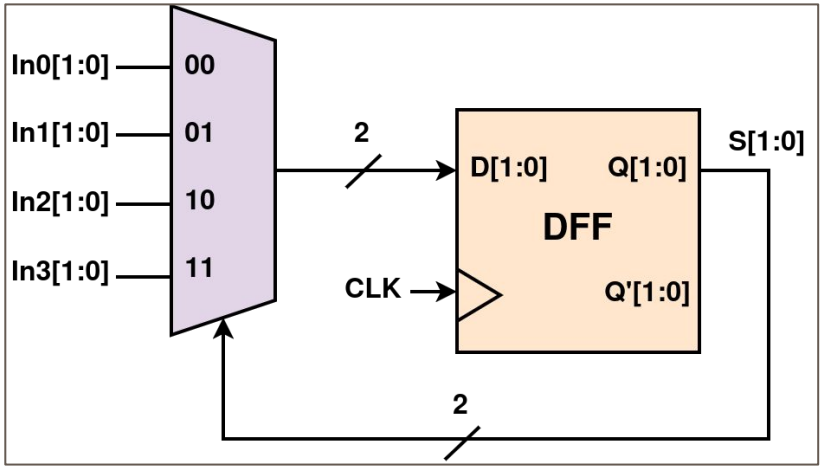
Build a State Assignment Table

State Bits		State Name
S[1]	S[0]	
?	?	
?	?	
?	?	
?	?	



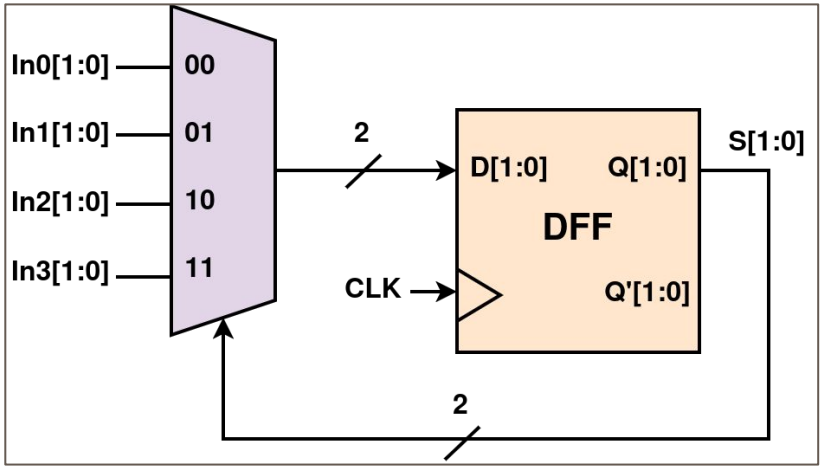
Build a State Assignment Table

State Bits		State Name
S[1]	S[0]	
0	0	?
0	1	?
1	0	?
1	1	?



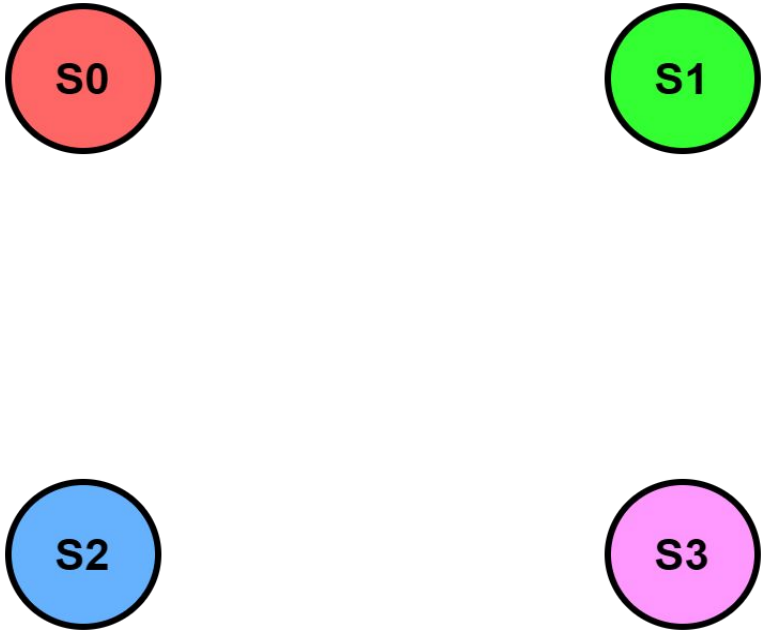
Build a State Assignment Table

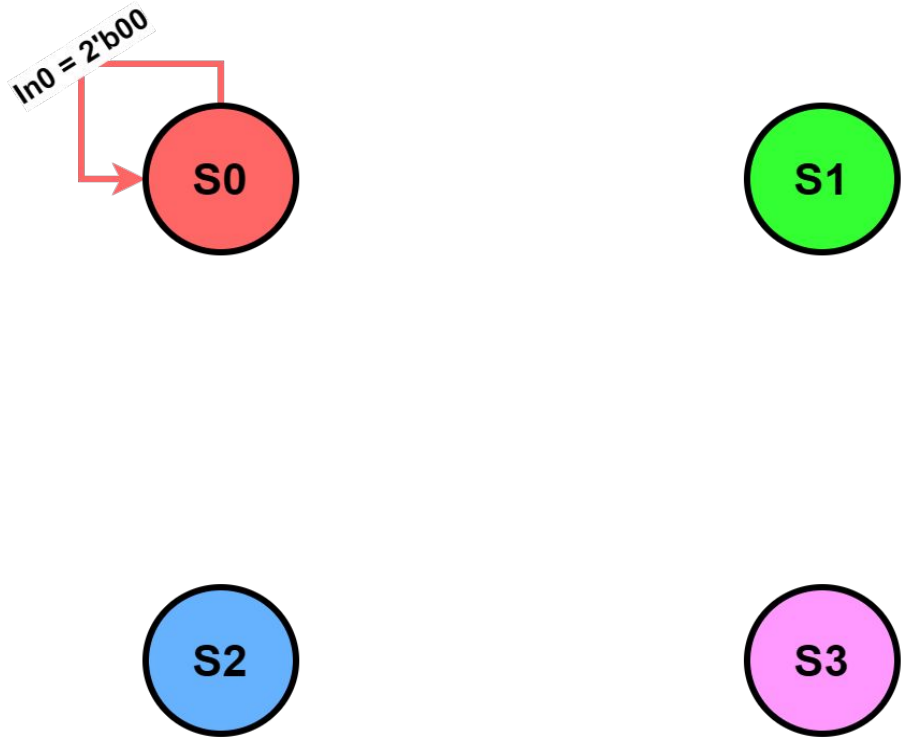
State Bits		State Name
S[1]	S[0]	
0	0	S0
0	1	S1
1	0	S2
1	1	S3

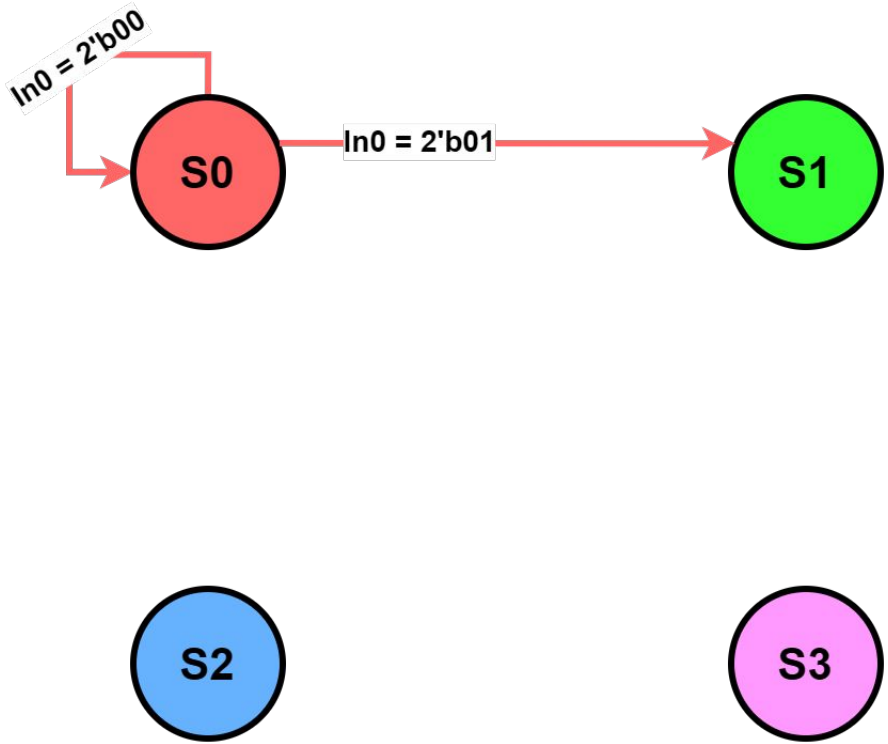


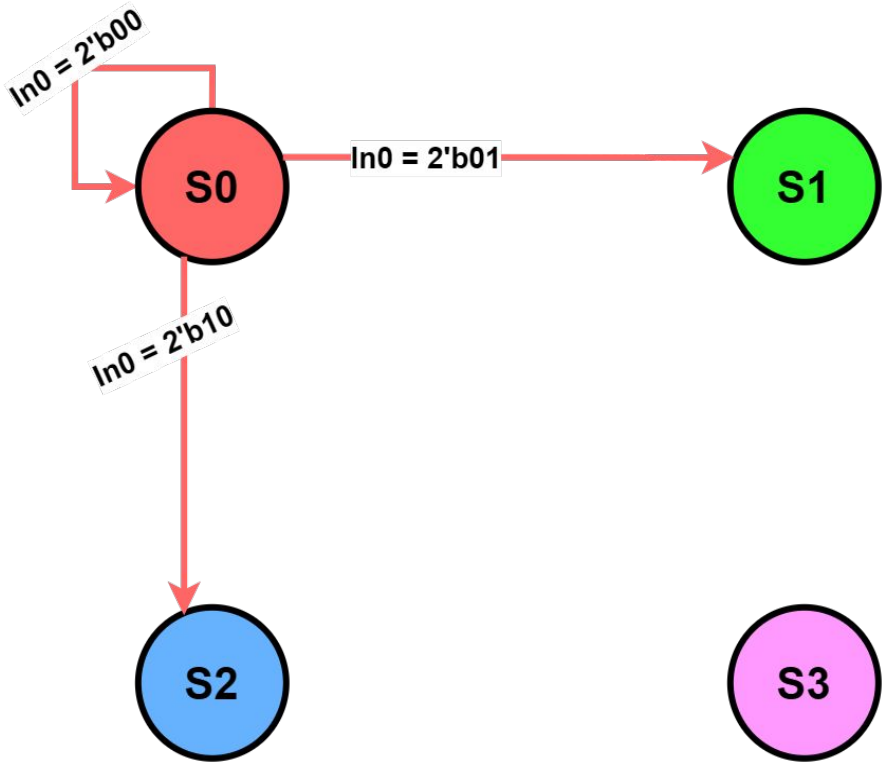
Constructing State Transition Diagram

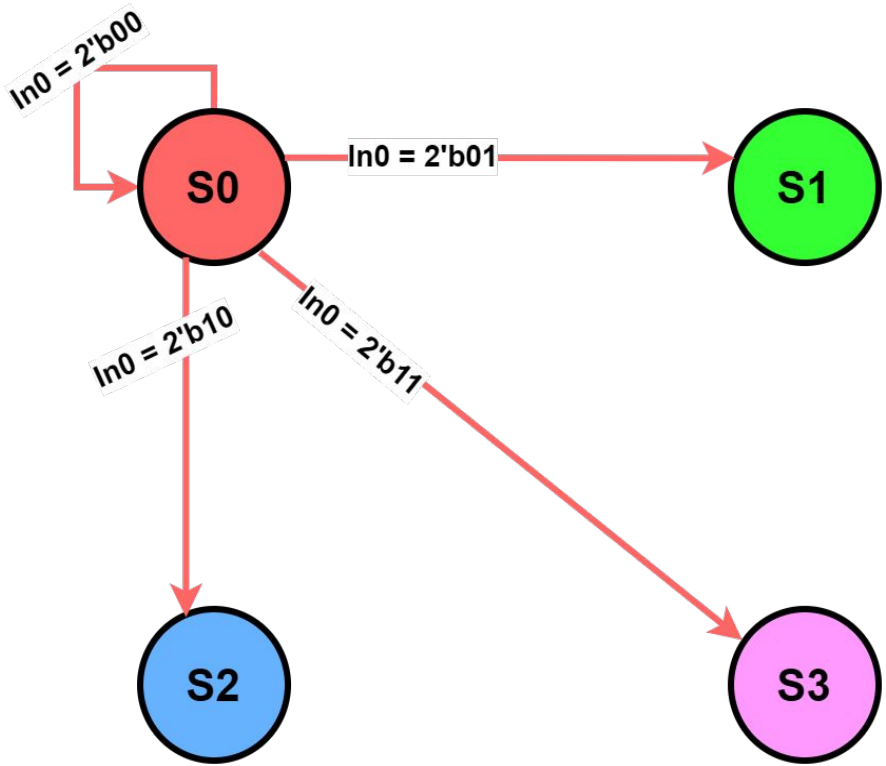
Let’s Build a State Diagram

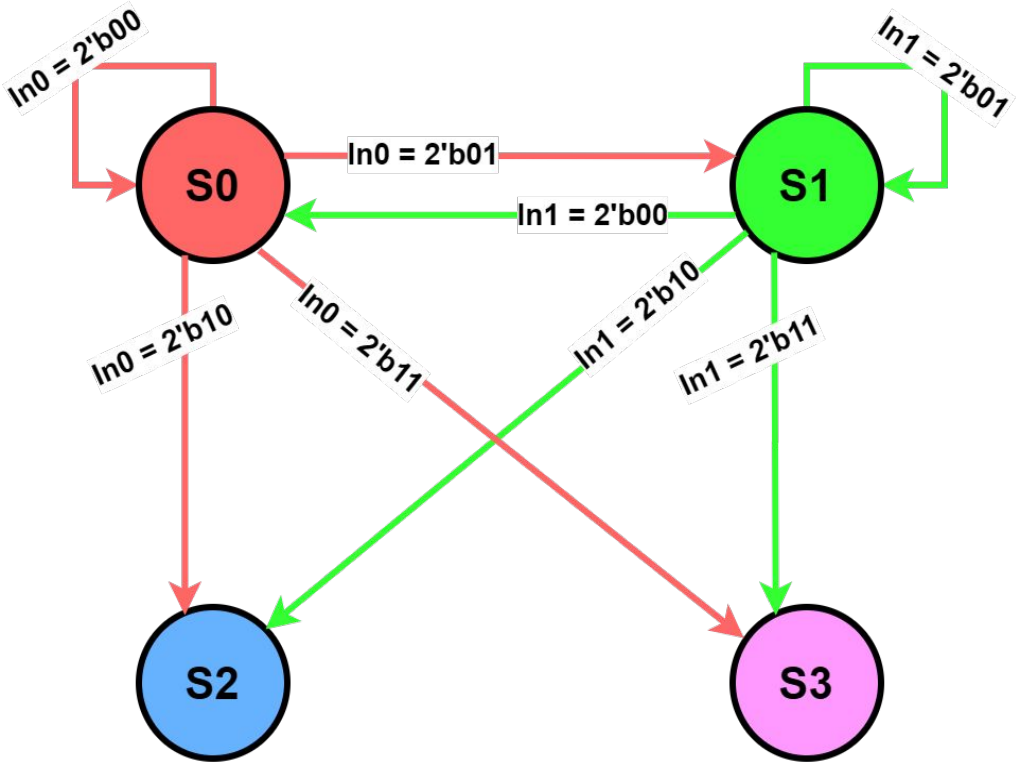


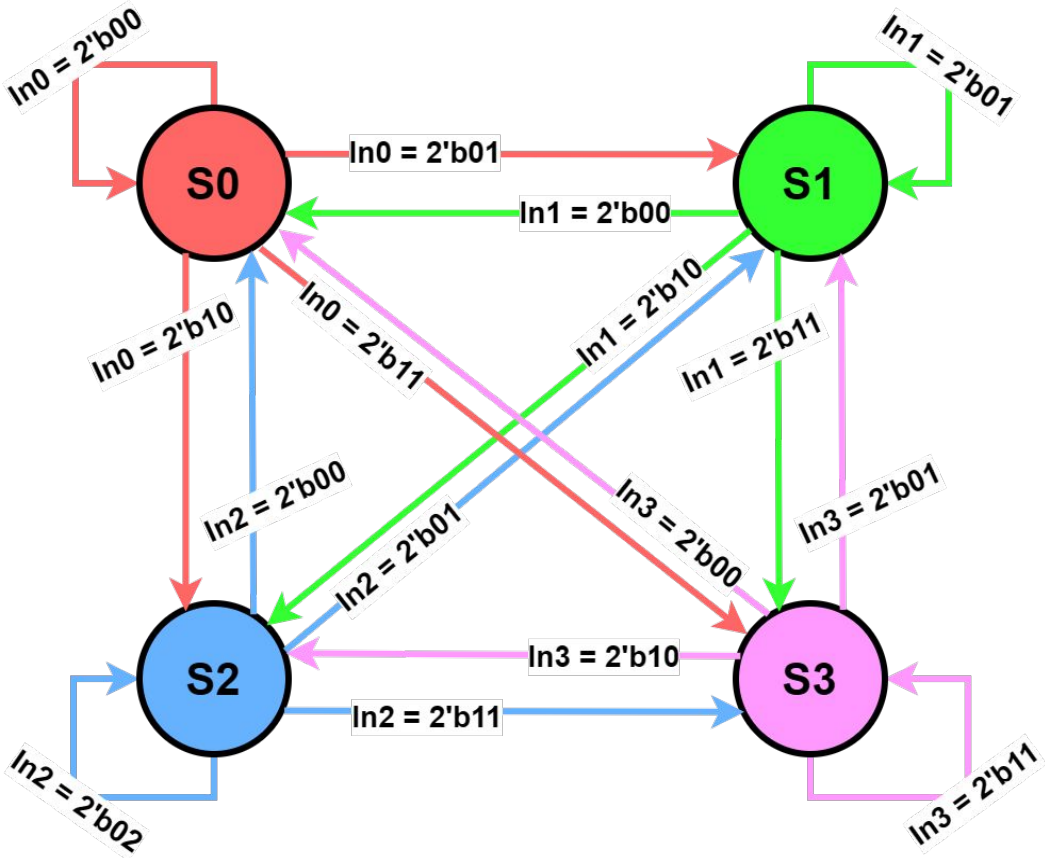

In0 = 2'b00
S0
S1
S2
S3


In0 = 2'b00
S0
In0 = 2'b01
S1
S2
S3


In0 = 2'b00
S0
In0 = 2'b01
S1
In0 = 2'b10
S2
S3


In0 = 2'b00
S0
In0 = 2'b01
S1
In0 = 2'b10
In0 = 2'b11
S2
S3

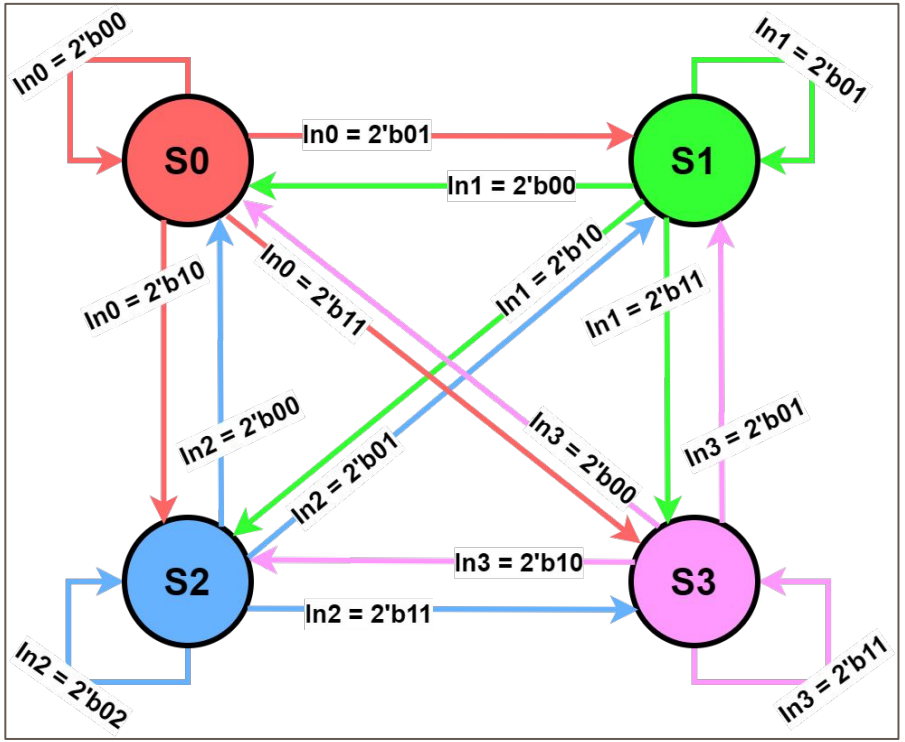

In0 = 2'b00
In1 = 2'b01
S0
In0 = 2'b01
S1
In1 = 2'b00
In0 = 2'b10
In0 = 2'b11
In1 = 2'b10
In1 = 2'b11
S2
S3


In0 = 2'b00
In1 = 2'b01
S0
In0 = 2'b01
S1
In1 = 2'b00
In0 = 2'b10
In0 = 2'b11
In1 = 2'b10
In1 = 2'b11
In2 = 2'b00
In2 = 2'b01
In3 = 2'b00
In3 = 2'b01
S2
In3 = 2'b10
S3
In2 = 2'b11
In2 = 2'b02
In3 = 2'b11

Generating High-Level Next State Equation

Generating High-Level Next State Equation

```
if (S = ??):
  S+ = ??
else if (S = ??):
  S+ = ??
else if (S = ??):
  S+ = ??
else:
  S+ = ??
```



Generating High-Level Next State Equation

if (S = **S0**):
  S^+ = **In0**
else if (S = **S1**):
  S^+ = **In1**
else if (S = **S2**):
  S^+ = **In2**
else:
  S^+ = **In3**