READ 6.1.2-6.1.6

Lecture 34

Flip-flop B

Conversion from FF A to B

Conversion Logic
<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>x</th>
<th></th>
<th>1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>x</td>
<td>1</td>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>x</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>FF</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**Truth Table: 2-TYPE**

<table>
<thead>
<tr>
<th>INPUTS</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0, 0</td>
<td>0, 0</td>
</tr>
<tr>
<td>0, 1</td>
<td>1, 0</td>
</tr>
<tr>
<td>1, 0</td>
<td>0, 1</td>
</tr>
<tr>
<td>1, 1</td>
<td>0, 0</td>
</tr>
</tbody>
</table>

**Exeerion Table**

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>x</th>
<th></th>
<th>1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>x</td>
<td>1</td>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>x</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>FF</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**Examples**

- Assume a clocked 2-K FF
  - Connect a J-K to a 2-Type FF

\( E_X \)
\[
\begin{array}{c|ccc}
1 & 1 & 1 \\
\hline
0 & 0 & 1 \\
0 & 1 & 0 \\
0 & 0 & 0 \\
\hline
G & 6 & G
\end{array}
\]

\underline{G - Type CP}

Characteristic Table of a Clockwise 1k CP

Create your own CP from

\( G \times G \)
Complete the output for all \( t \geq t_0 \).

The state at \( t = t_0 \) and the input \( \mathbf{e}_t \geq t \),

as the memory unit.

As the output (combination of the bit pattern)

the state of a sequential machine is defined.

The input signals received

output signals follow a sequence representing an

also called finite-state machines.

Sequential machines
(The present state of the S.M.)

Only the present state code

- The output code is a function of

Moore: - Class 13

(Brock, 1963, Figure)

S-state code (The present state of S.M.)
Both the present input & the present state.
- The output code is a function of

Mealy: - Class A

(Gockel, 1963, Figure)

Classes of S.M.

[Diagram showing a model of a state machine]
6) Develop State Machine

5) Find true next state code

4) Update a prestate - Next - State Table

3) Plot the k-maps ( Truth Table)

(You know the next state becomes a output therefore)

2) Develop Boolean Expr. For each output

Identify The Blocks

Steps in the Analysis

- Helps us relationship why a S.M. doesn't make
- It will give us insight into the region

A Nalysis of S.M.

A Nalysis of S.M.

Synchronous: - Use Clocks

Asynchronous: - One Single System Clock

Synchronization: - Use Clocked FF's instead Core.

Class C: - The output core is present state Core.