Electronics And Robotics Club

IIIT TALKS

BY

CLUBS COUNCIL

Introduction To Verilog

What is Verilog?

- Verilog is a HARDWARE DESCRIPTION LANGUAGE (HDL).(VHDL, System Verilog, etc.)
- It is a language used for describing a digital system like a network switch or a microprocessor or a memory or a flip−flop.
- It means, by using HDL we can describe any digital hardware at any level.

Today's Talk

This is a **hands-on** session.

Requirements:

- Knowledge of Basic DSM circuits
- Any Linux distro
- Iverilog and Gtkwave installed
- Knowledge of any 1 programming language

LET'S GET STARTED!

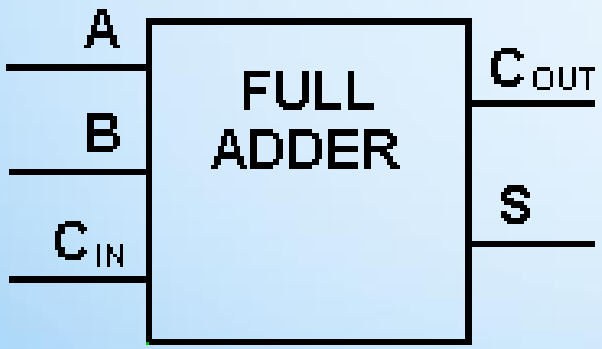
Drivers

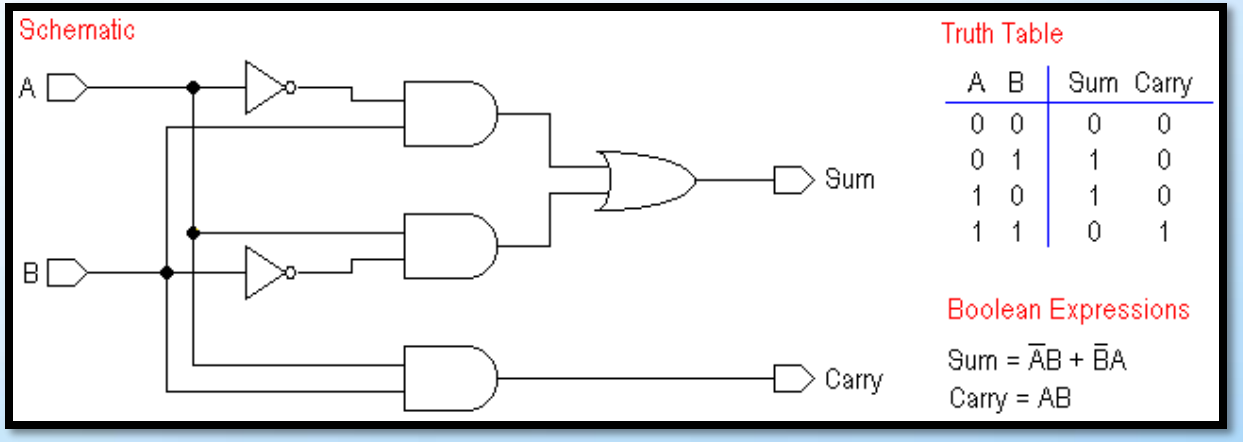
- A driver is a data type which can drive a load. Basically, in a physical circuit, a driver would be anything that electrons can move through/into.
- Driver that can store a value (example: flip-flop).
- Driver that cannot store value, but connects two points (example: wire).

The first type of driver is called a reg in Verilog (short for "register"). The second data type is called a wire (for... well, "wire").

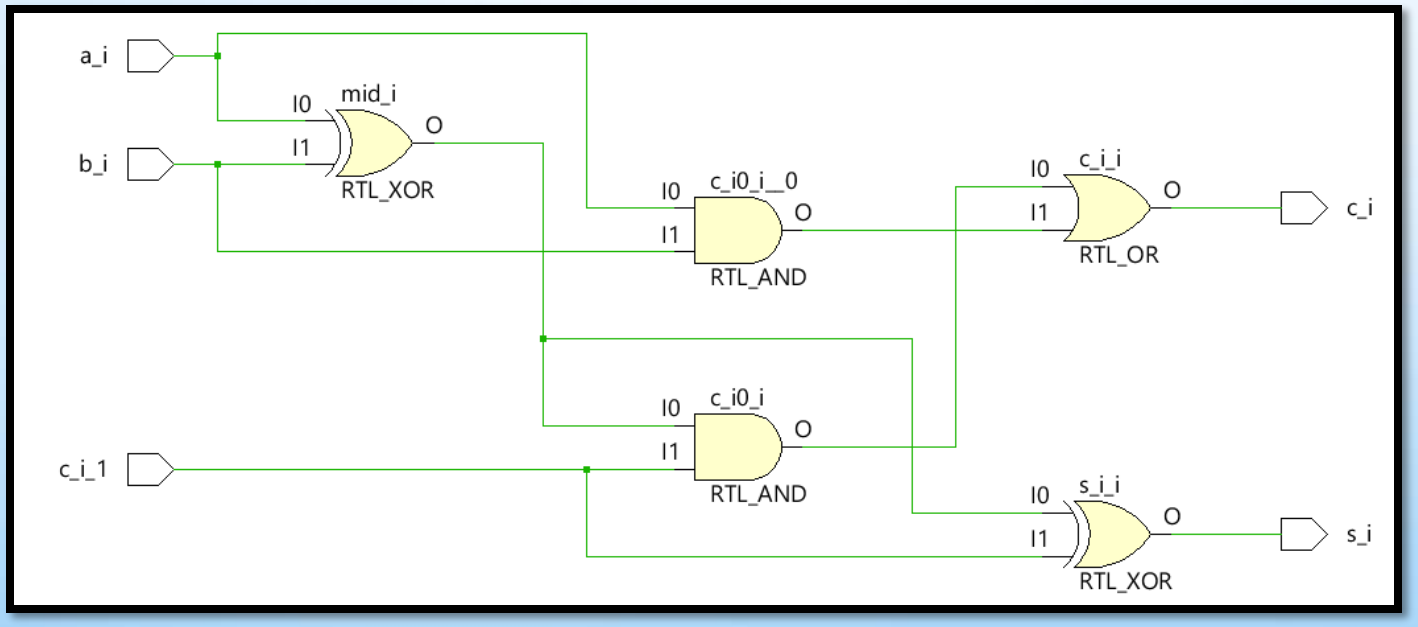
EXAMPLE - 1

1 bit ADDER: Intro to Combinational Circuits



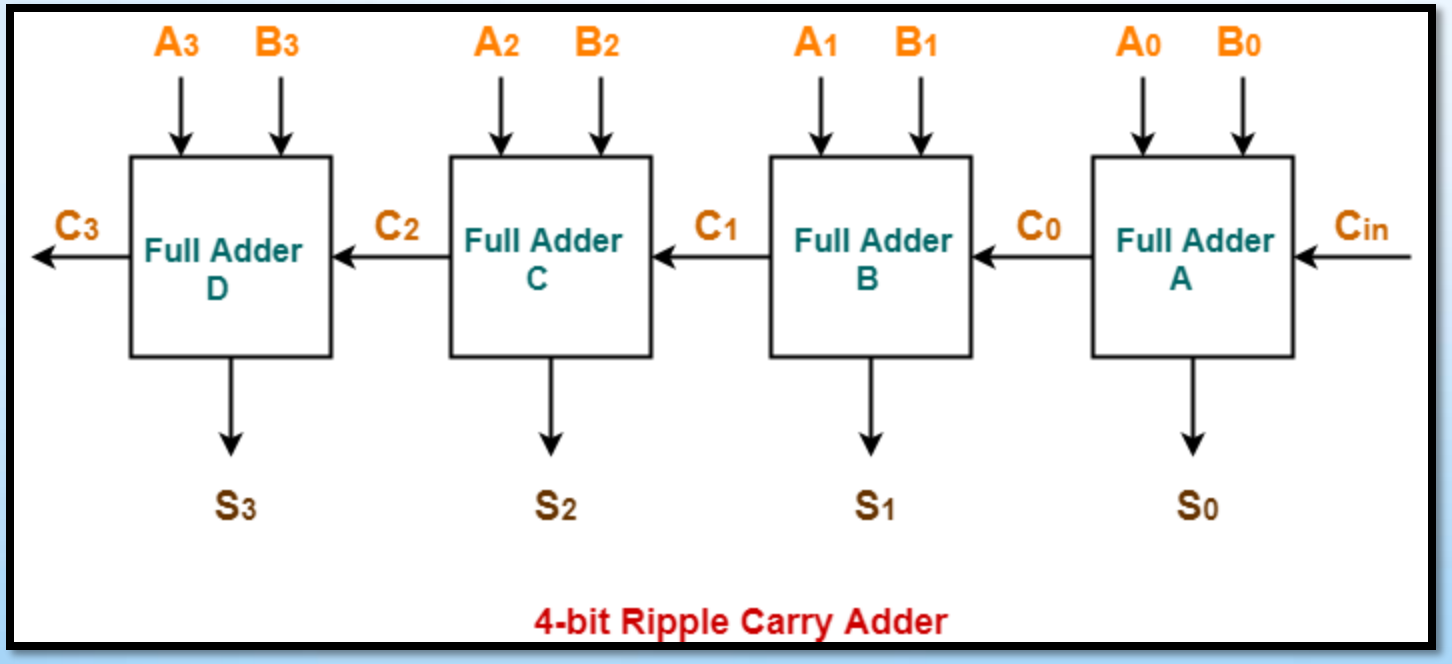


RTL (Register-transfer level)

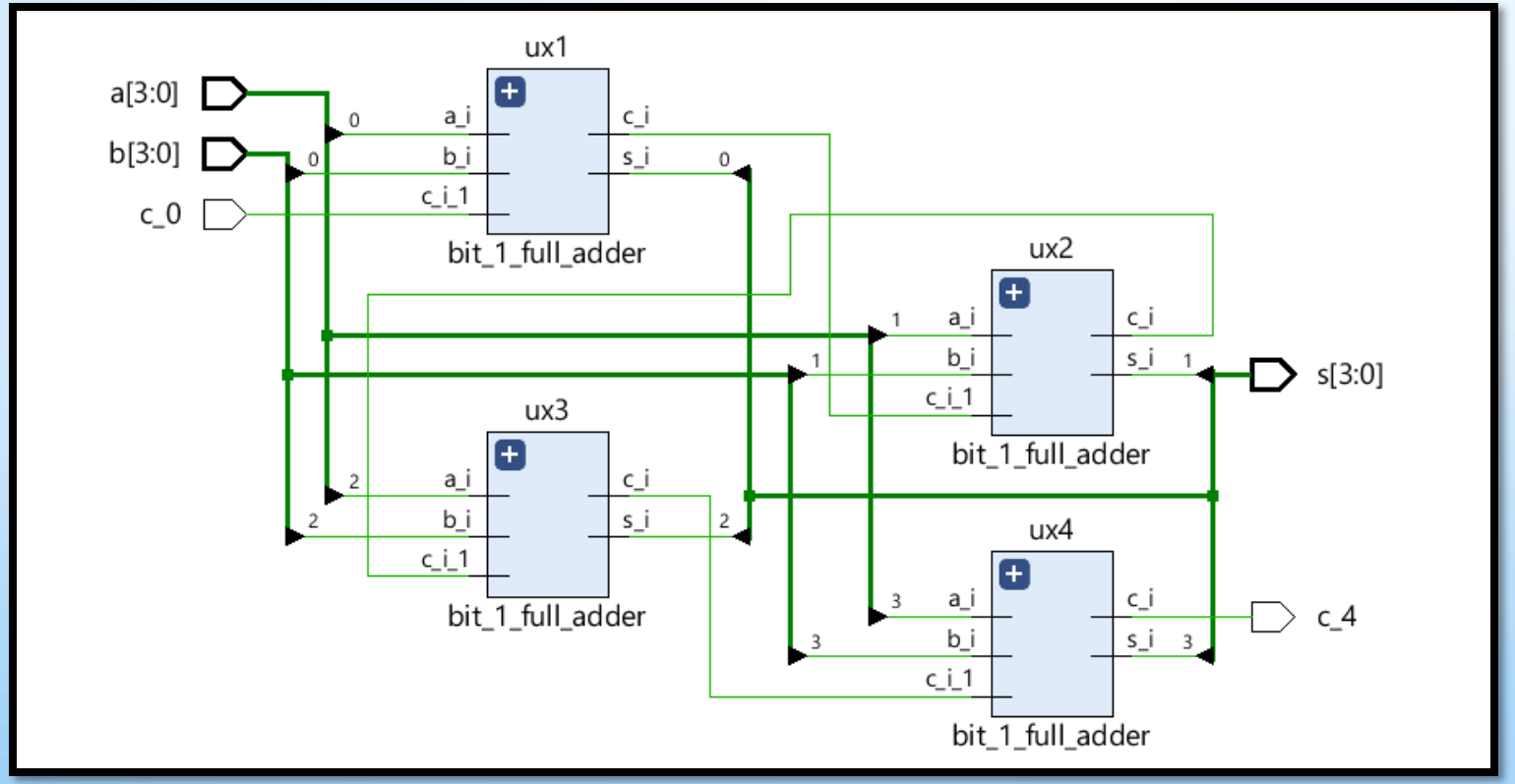


EXAMPLE - 2

4-bit ADDER


A3
B3
A2
B2
A1
B1
A0
B0
C3
Full Adder
D
C2
Full Adder
C
C1
Full Adder
B
C0
Full Adder
A
Cin
S3
S2
S1
S0
4-bit Ripple Carry Adder

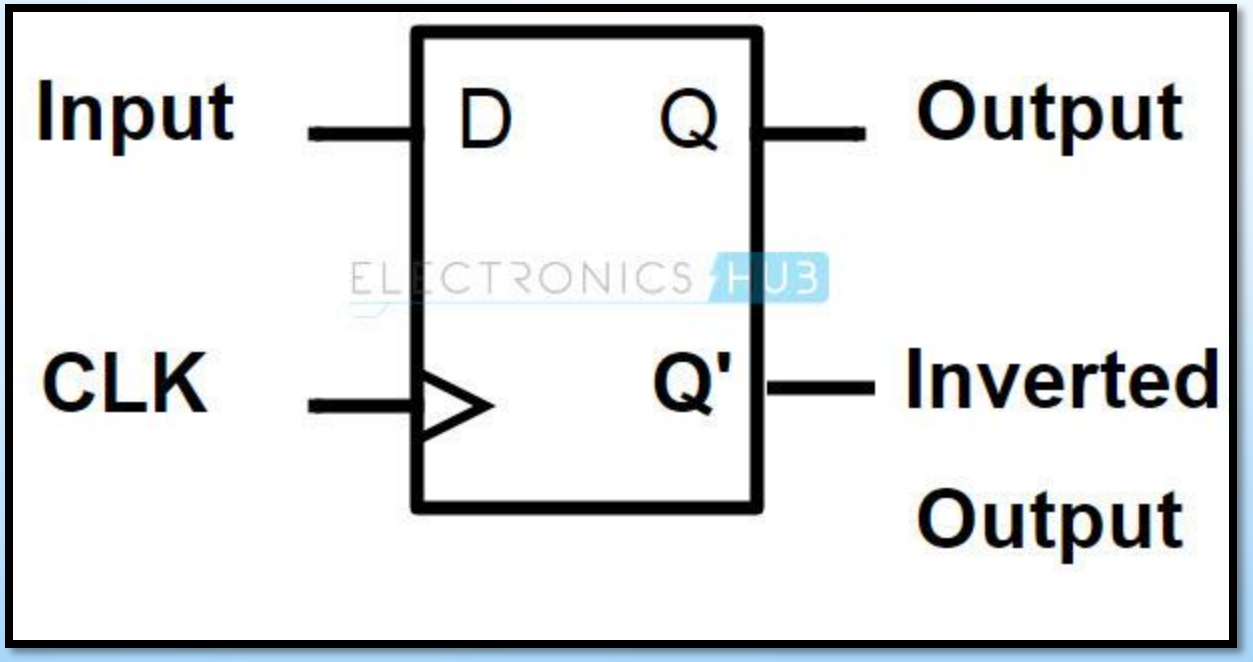
RTL (Register-transfer level)



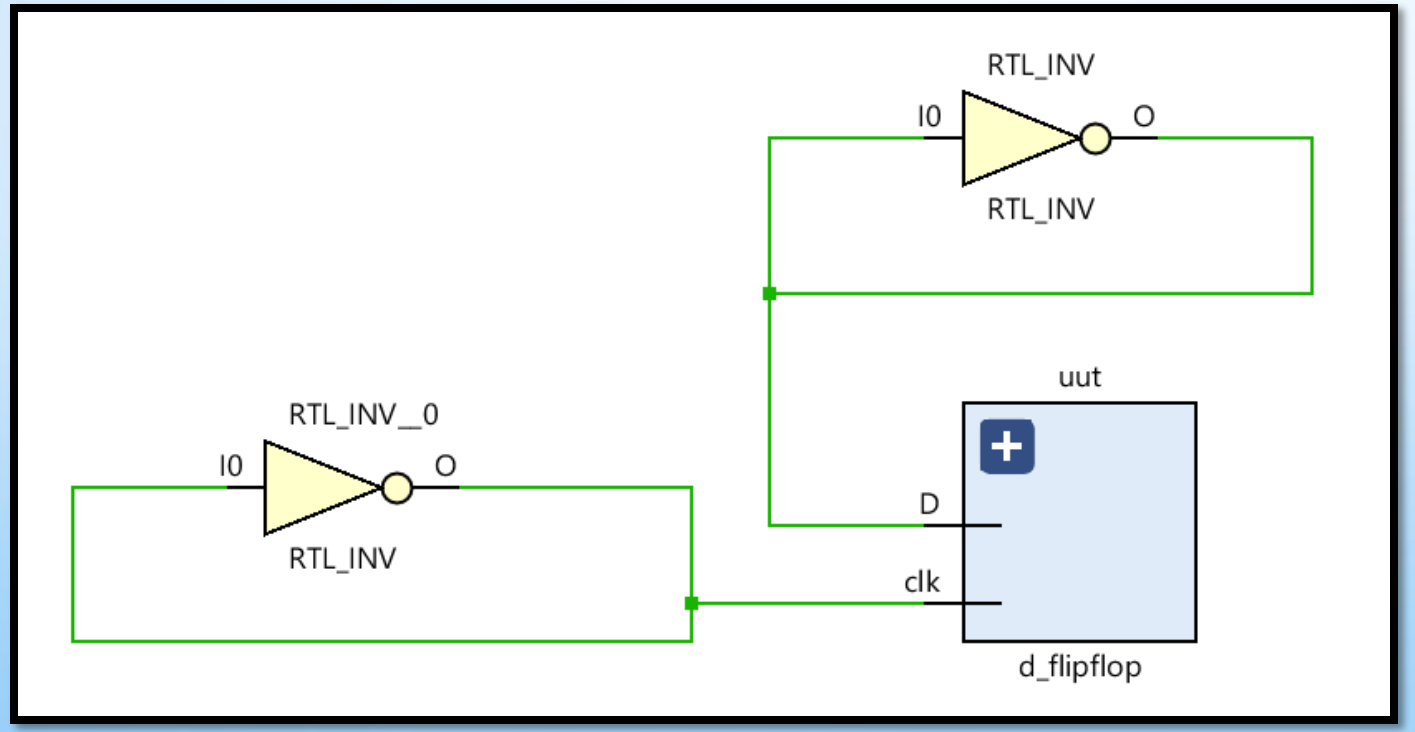
QUESTIONS?

EXAMPLE - 3

D FLIP FLOP : Intro to Sequential Circuits

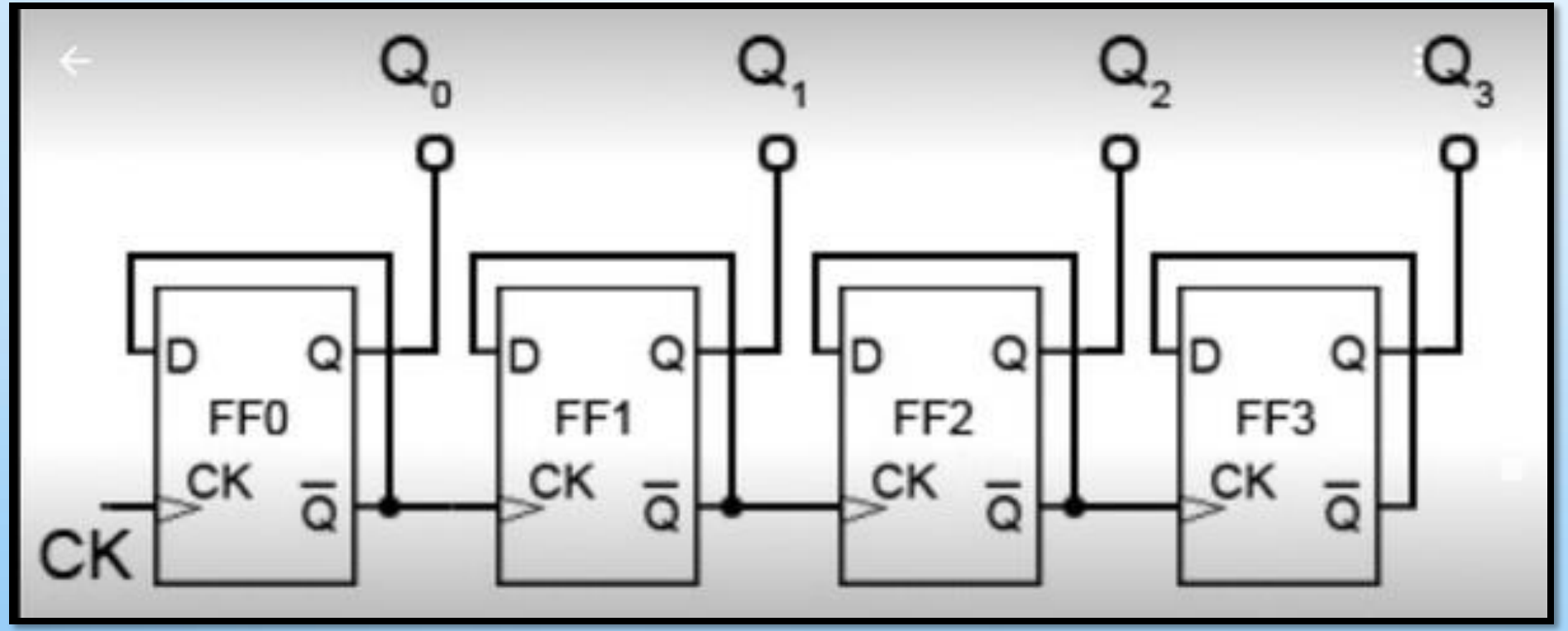


RTL (Register-transfer level)

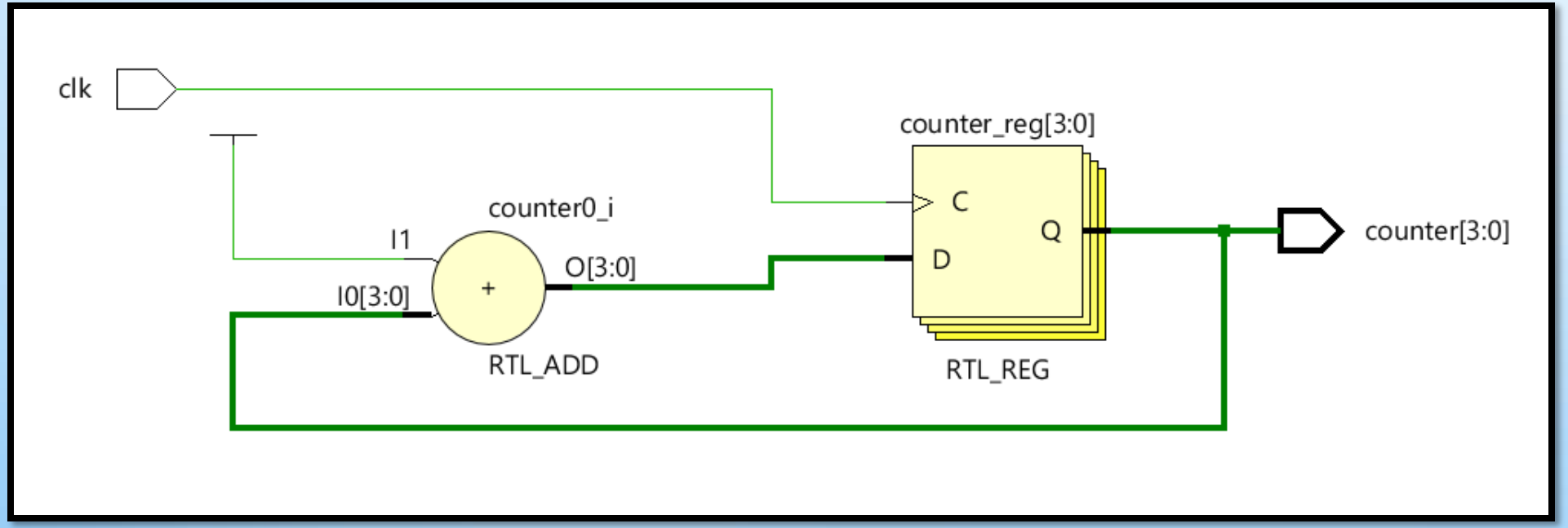


EXAMPLE - 4

Counters

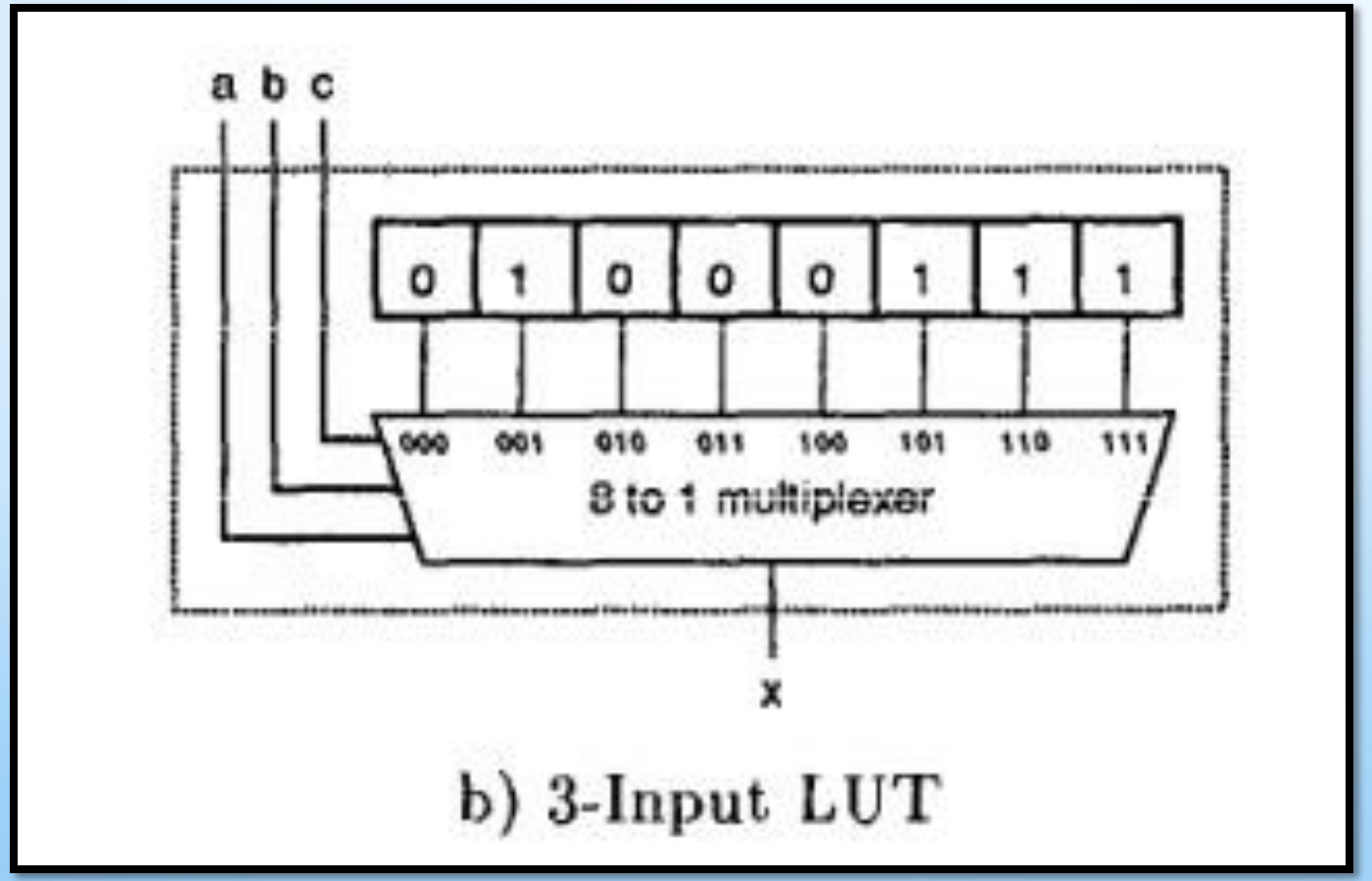


RTL (Register-transfer level)



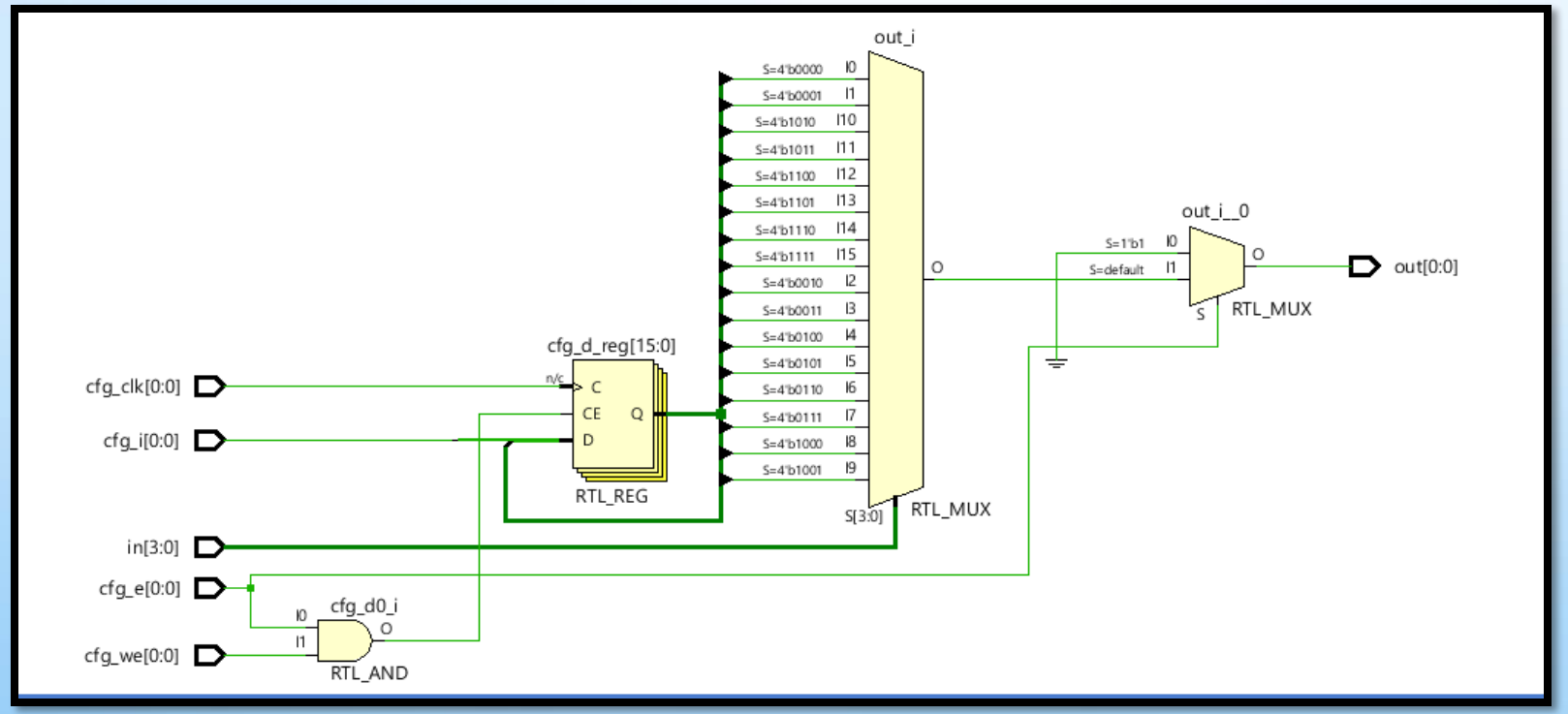
EXAMPLE - 5

LUTs (Look Up Tables)



b) 3-Input LUT

RTL (Register-transfer level)



You can try out
the extra examples
present in the GitHub repo

QUESTIONS?

COMPETITON

STAY BACK IF YOU WANT TO CHAT xD