Laboratory 4: One Shots, clocks, and timing
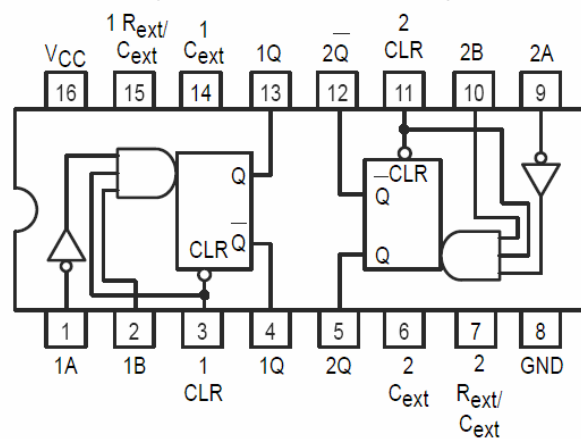
1. Use 74LS123 dual one-shots with external resistors and capacitors to generate pulses with a 30 µs width.

2. Use two one-shots to generate a 30 µs pulse that is delayed from a trigger by 1 ms.

3. Use a Verilog program, an FPGA, and a 50 MHz clock to generate a 30 µs pulse that is delayed from a trigger by 1 ms.

4. Generate a 1 MHz square wave with a function generator. Use a Verilog program and an FPGA to transform this 1 MHz square wave to a 125 kHz square wave.

Monostable Multivibrator (74__123N)

LS123
FUNCTIONAL TABLE

INPUTS			OUTPUTS	
CLEAR	A	B	Q	Q̄
L	X	X	L	H
X	H	X	L	H
X	X	L	L	H
H	L	↑	⊓	⊔
H	↓	H	⊓	⊔
↑	L	H	⊓	⊔