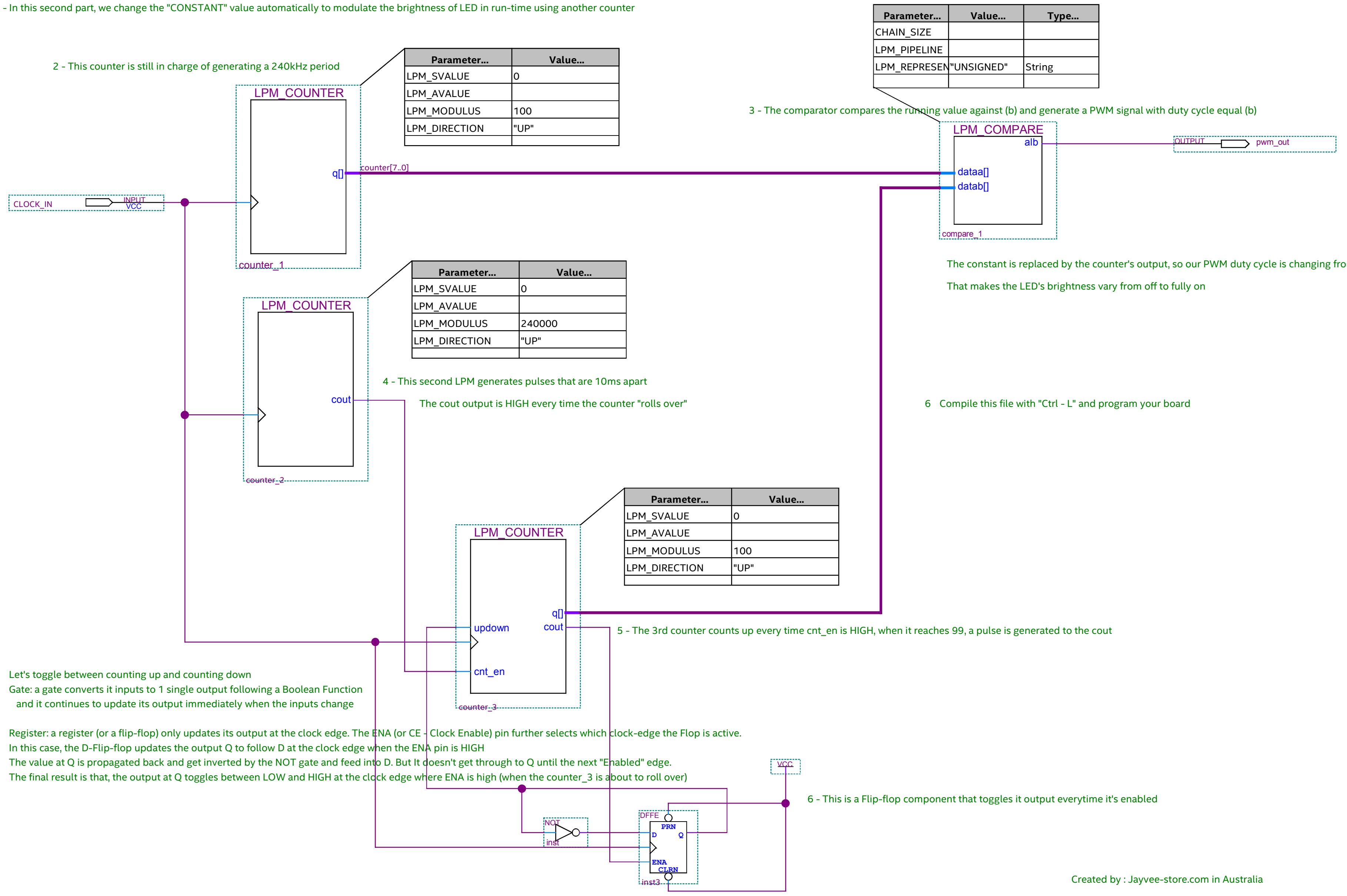
Part 2 of 2: Use another Counter to modulate the brightness of LED

1 - In this second part, we change the "CONSTANT" value automatically to modulate the brightness of LED in run-time using another counter



2 - This counter is still in charge of generating a 240kHz period

Parameter...	Value...
LPM_SVALUE	0
LPM_AVALUE	
LPM_MODULUS	100
LPM_DIRECTION	"UP"

Parameter...	Value...	Type...
CHAIN_SIZE		
LPM_PIPELINE		
LPM_REPRESEN	"UNSIGNED"	String

3 - The comparator compares the running value against (b) and generate a PWM signal with duty cycle equal (b)

The constant is replaced by the counter's output, so our PWM duty cycle is changing from 0 to 99

That makes the LED's brightness vary from off to fully on

Parameter...	Value...
LPM_SVALUE	0
LPM_AVALUE	
LPM_MODULUS	240000
LPM_DIRECTION	"UP"

4 - This second LPM generates pulses that are 10ms apart

The cout output is HIGH every time the counter "rolls over"

6 Compile this file with "Ctrl - L" and program your board

Parameter...	Value...
LPM_SVALUE	0
LPM_AVALUE	
LPM_MODULUS	100
LPM_DIRECTION	"UP"

5 - The 3rd counter counts up every time cnt_en is HIGH, when it reaches 99, a pulse is generated to the cout

Let's toggle between counting up and counting down
Gate: a gate converts it inputs to 1 single output following a Boolean Function
and it continues to update its output immediately when the inputs change

Register: a register (or a flip-flop) only updates its output at the clock edge. The ENA (or CE - Clock Enable) pin further selects which clock-edge the Flop is active.
In this case, the D-Flip-flop updates the output Q to follow D at the clock edge when the ENA pin is HIGH
The value at Q is propagated back and get inverted by the NOT gate and feed into D. But It doesn't get through to Q until the next "Enabled" edge.
The final result is that, the output at Q toggles between LOW and HIGH at the clock edge where ENA is high (when the counter_3 is about to roll over)

6 - This is a Flip-flop component that toggles it output everytime it's enabled

Created by : Jayvee-store.com in Australia