

Timer/Counter1 is 16-bit \rightarrow No, use 8-bit: Timer/Counter0
 Clock Select bits are in TCCR1B
 To use register OCR1A as TOP value, it cannot generate a PWM output.
 Therefore, output PWM on OCR1B.

TCCR0A COM0A 1:0 = 0
 TCCR1A COM1A 1:0 = 0 Normal port operation
 COM0B 1:0 = 11
 COM1B 1:0 = 11

COM0B 1:0 = 10
 COM1B 1:0 = 10

WGM0 2:0 = 111 Fast PWM, TOP=OCR0A
 WGM1 3:0 = 1111 Fast PWM mode TOP=OCR1A
 WGM1 1:0 are in TCCR1A, WGM1 3:2 are in TCCR1B,
 WGM0 1:0 TCCR0A WGM0 2 TCCR0B

TCCR1B CS1 2:0 Want LIS CLK = 100 kHz $\rightarrow T_{pwm} = 10 \mu s$
 TCCR0B CS0 2:0 = 001 MCU CLK = 10 MHz $\rightarrow T_{mcu} = 0.1 \mu s$

No prescaler
 $f_{pwm} = f_{sys}$

$$\frac{T_{pwm}}{T_{mcu}} = \frac{10 \mu s}{0.1 \mu s} = 100 = OCR1A \quad OCR0A$$

$$50 = OCR1B \quad OCR0B$$

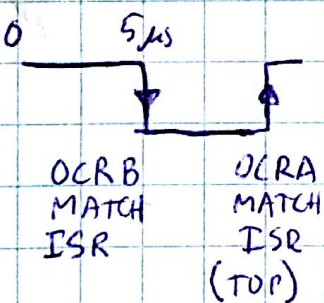
OCR0A = 100 ($100 \times 0.1 \mu s = 10 \mu s$)

CLOCK PRESCALER = 1

Do not use PRESCALER > 1, ex: PRESCALER = 8,
 PWM timer is clocked once every $0.8 \mu s$:

OCR0B = 50

$\frac{10 \mu s}{0.8 \mu s} = 12.5 = OCR1A$ } MUST BE INTEGER,
 $6.25 = OCR1B$ } PWM WILL BE A
 LITTLE OFF



AT PRESCALER = 1, what is slowest 8-bit PWM?

$256 \times 0.1 \mu s = 25.6 \mu s \rightarrow LIS CLK MIN = 39.1 kHz$

$LIS CLK MIN = 15 kHz \rightarrow 66 \mu s$

We could hit this with the prescaler if we needed it.
 Stick with 8-bit module.