OPTION_REG REGISTER

R/W-1	R/W-1	R/W-1	R/W-1	R/W-1	R/W-1	R/W-1	R/W-1
RBPU	INTEDG	T0CS	T0SE	PSA	PS2	PS1	PS0

bit 7   bit 0
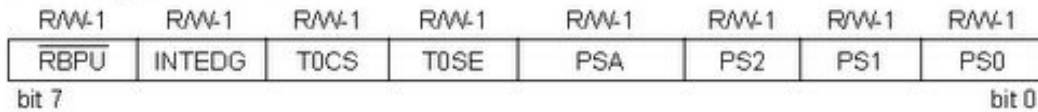
As we can see, the size of the register is 8 bits. Let's explore the relevant bits:

T0CS: TMR0 Clock Source Select bit
This bit determines the clock source. We can determine if the timer will work with the system internal crystal clock (4 MHz crystal), or an external clock.

1 = Transition on T0CKI pin
0 = Internal instruction cycle clock (CLKO)

*** *It is important to comment that if we use the crystal as the clock, its frequency is divided by 4 automatically. We have to pay attention to this point when we are calculation the value of the timer.*

T0SE: TMR0 Source Edge Select bit
With this bit we can set the timer threshold response. We can determine whether the timer will respond to the falling or to the rising edge.

1 = Increment on high-to-low (falling) transition on T0CKI pin
0 = Increment on low-to-high (rising) transition on T0CKI pin

PSA: Prescaler Assignment bit
This bit determines if the frequency Prescaler will be assignment to Timer0 or Watchdog. Also, if you do not refer to the PSA settings when you are determining the setting for Timer0, the default Prescaler is a division of 1:1.

1 = Prescaler is assigned to the WDT
0 = Prescaler is assigned to the Timer0 module

Watchdog:
The "job" of this timer is to prevent a situation in which the microcontroller program hangs. It performs reset to the system in case the software hangs and "make sure" that the system, continues to function properly.

PS2:PS0 – Prescaler Rate Select bits
Those bits determine the frequency division by the Prescaler

PS2:PS0: Prescaler Rate Select bits

Bit Value	TMR0 Rate	WDT Rate
000	1 : 2	1 : 1
001	1 : 4	1 : 2
010	1 : 8	1 : 4
011	1 : 16	1 : 8
100	1 : 32	1 : 16
101	1 : 64	1 : 32
110	1 : 128	1 : 64
111	1 : 256	1 : 128