

HW 4

9. a. One-shot mode: timer runs for a certain number of clock ticks and then stops. If it goes up the counter stops when it reaches 0. If it goes down then it stops when it reaches the value.

Periodic mode: the timer never stops and is continuous. If it goes up when it reaches its max value it goes back to 0 and starts over again.

PTC mode: This has a specific clock rate so the clock tick equals 1 second.
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Real time clock: This requires a 32.768 KHz clock.

Edge Count mode: timer counts edge events on CCP inputs. It compares the current count with a preset value and sets a flag when they are equal.

Edge Time mode: input capture mode that recognizes edge events on CCP inputs and allows the time of the event to be captured. When an input event is detected, the current timer is captured in the GPTMTAR register. This register holds the time in which the event occurred.

PWM mode: 24-bit count down counter as generates a PWM output signal. The load value determines the period of the PWM wave form and the reset value determines the high/low pulse widths.

6. TBTORIS = set?

When value is 1, then the timer has timed out. The interrupt is activated when either the one-shot mode or periodic mode timer reaches Count 0. This is a time out event.

1. The match value takes effect, immediately, when $MRSU = 0$ and at the next time out when $MRSU = 1$. This affects the PPM when the match value is either reached or has to wait until the next forecast to change its match value. These steps are old/new values of the match value / current timer value, and it's guaranteed to take effect during the next forecast.

2. Timer resolution / timer registers

The timer range is determined in which the timer operates and the registers are listed to which parts the timers have access to operate. I used to identify all of the timer modes really, specifying which timer mode you're using until was in part a, then in part c you use clock cycles to time out when the certain timer register occurs.

3. The main reason I used over the bar back it really made it quite easy to understand as listed things in a manner that allowed me to make quickly without to make something. The main also particular the use of the JIVA sheet but this was not used really as much as the low load was.

4. When timer mode(s) does not stop counting?

- Freeze mode
- Edge time mode
- Edge count mode (resets after hitting zero)