

PWM Basics Overview

TI Precision Labs – Timers

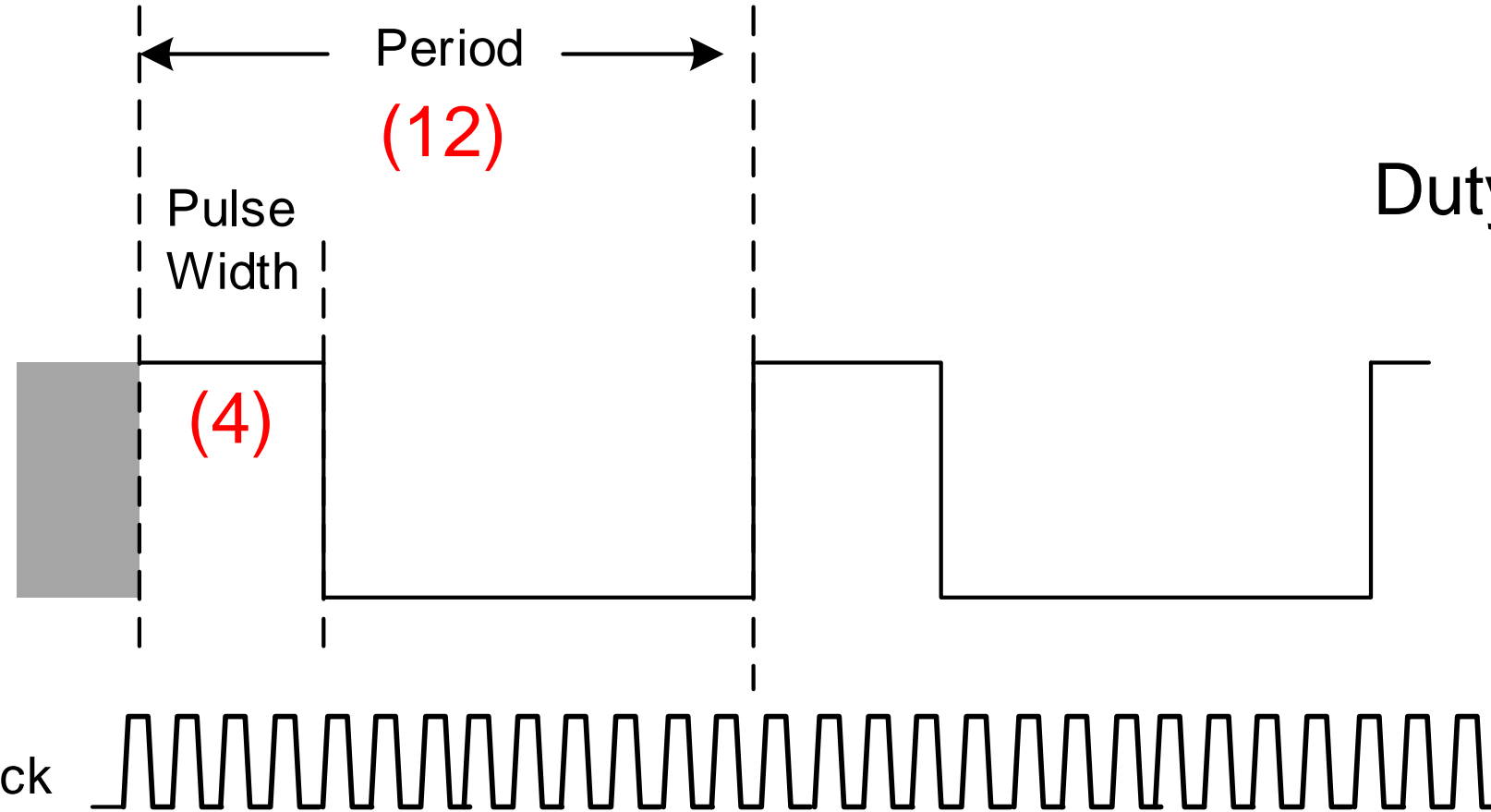
Presented by J.D. Crutchfield

Prepared by Leo Estevez



PWM history and overview

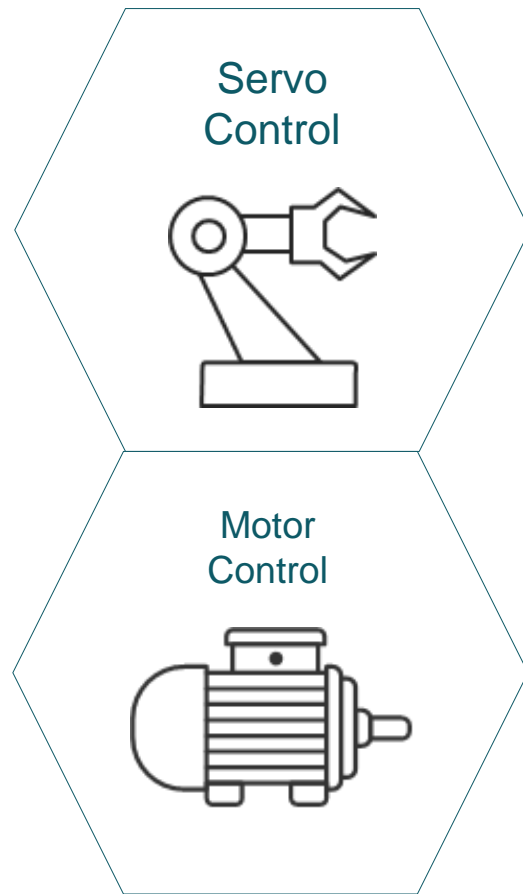
- Pulse refers to a short period of time over which the signal will be asserted.
- Width refers to the duration of time over which the signal is asserted.
- Modulation refers to changes in the pulse width over time.



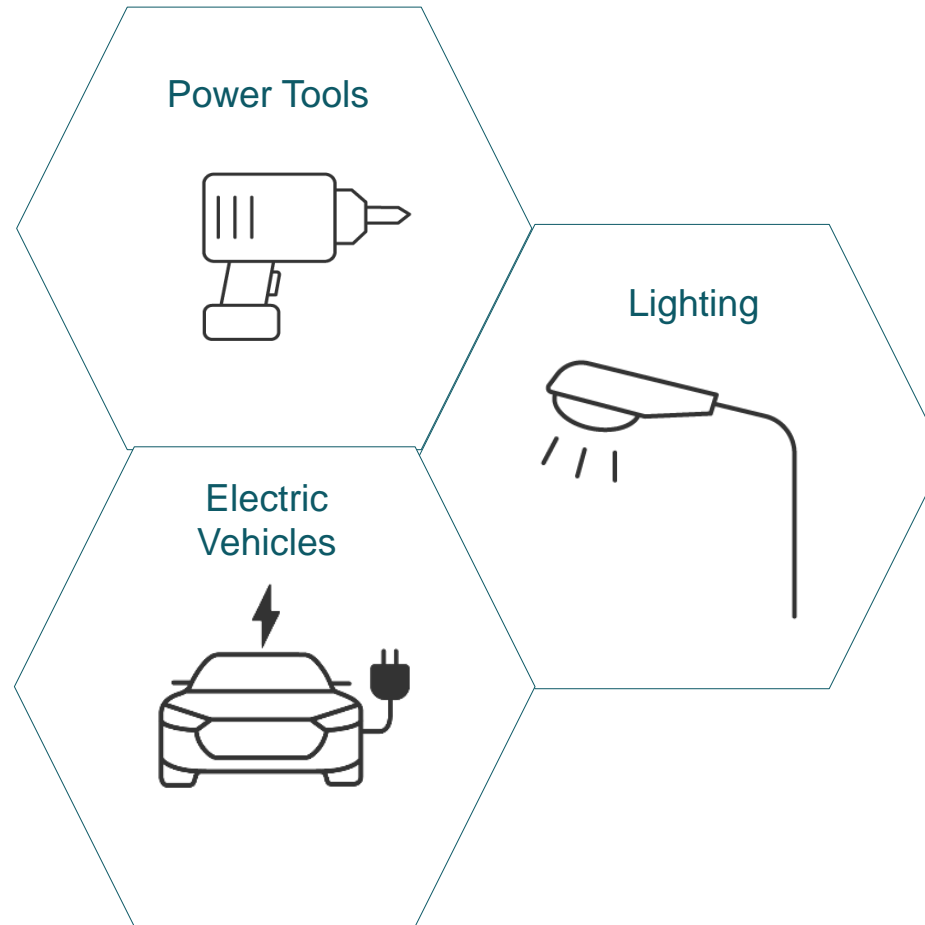
$$\text{Duty Cycle} = (\text{Pulse Width}/\text{Period}) * 100$$

$$\text{Duty Cycle} = (4/12) * 100 = \sim 33\%$$

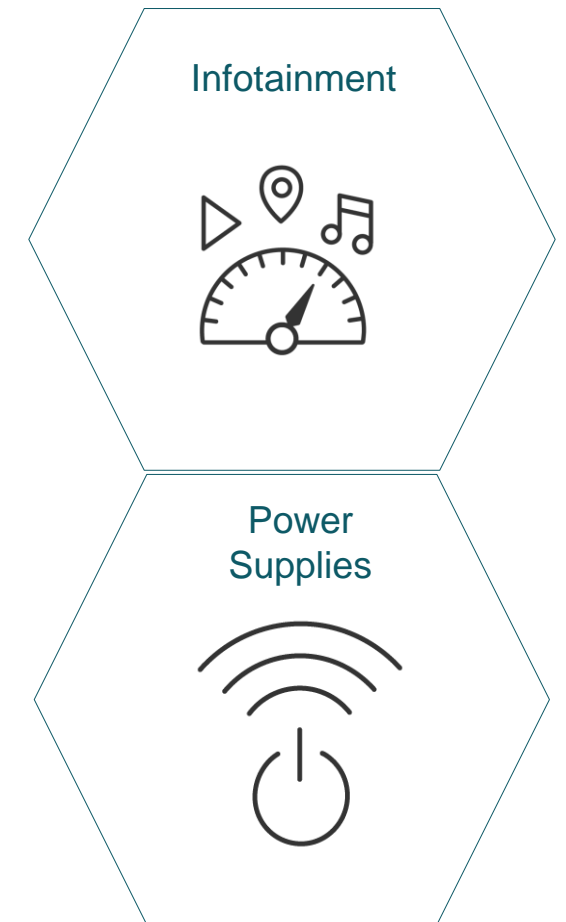
PWM Applications



Factory Automation

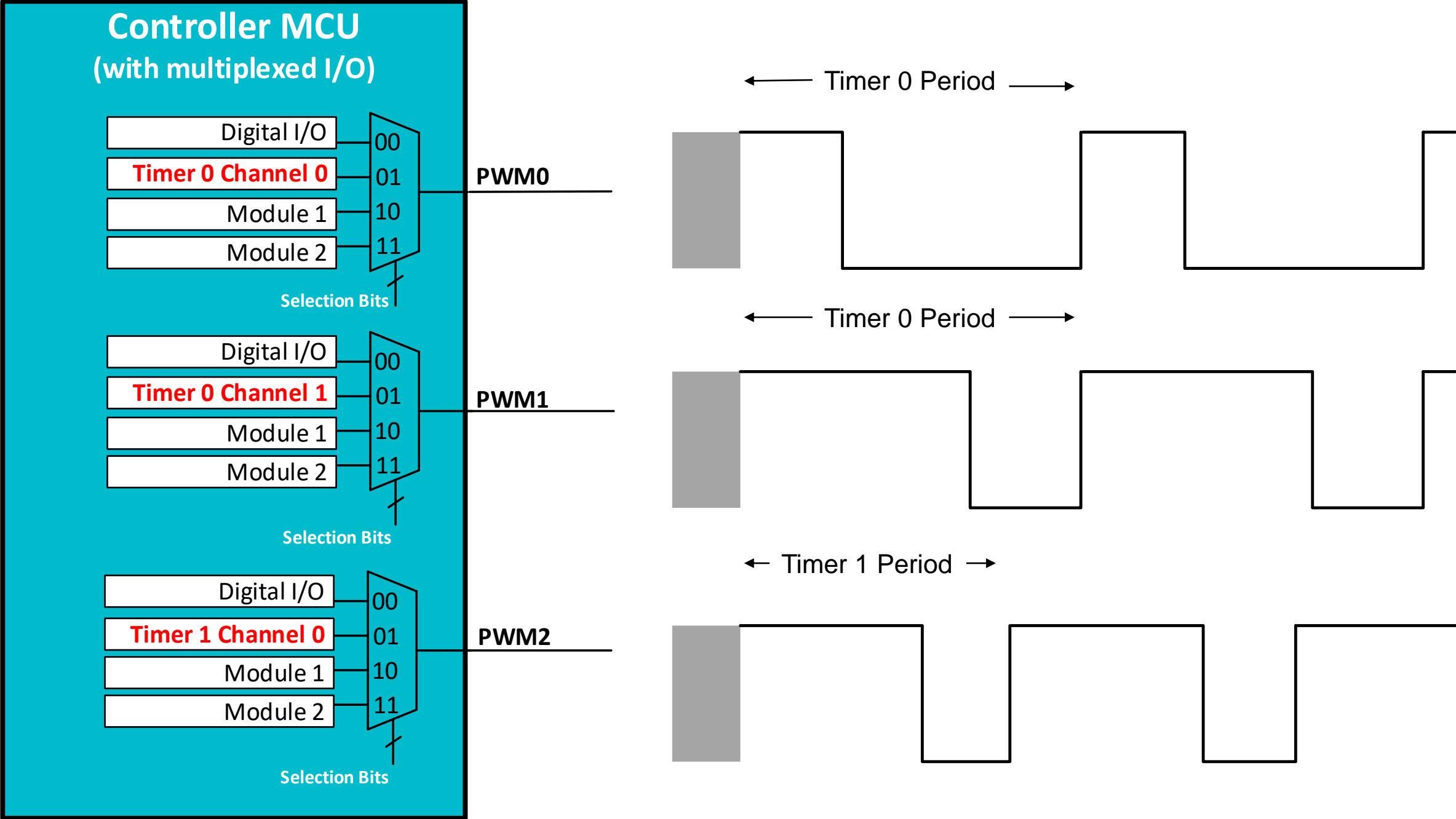


Battery Operated

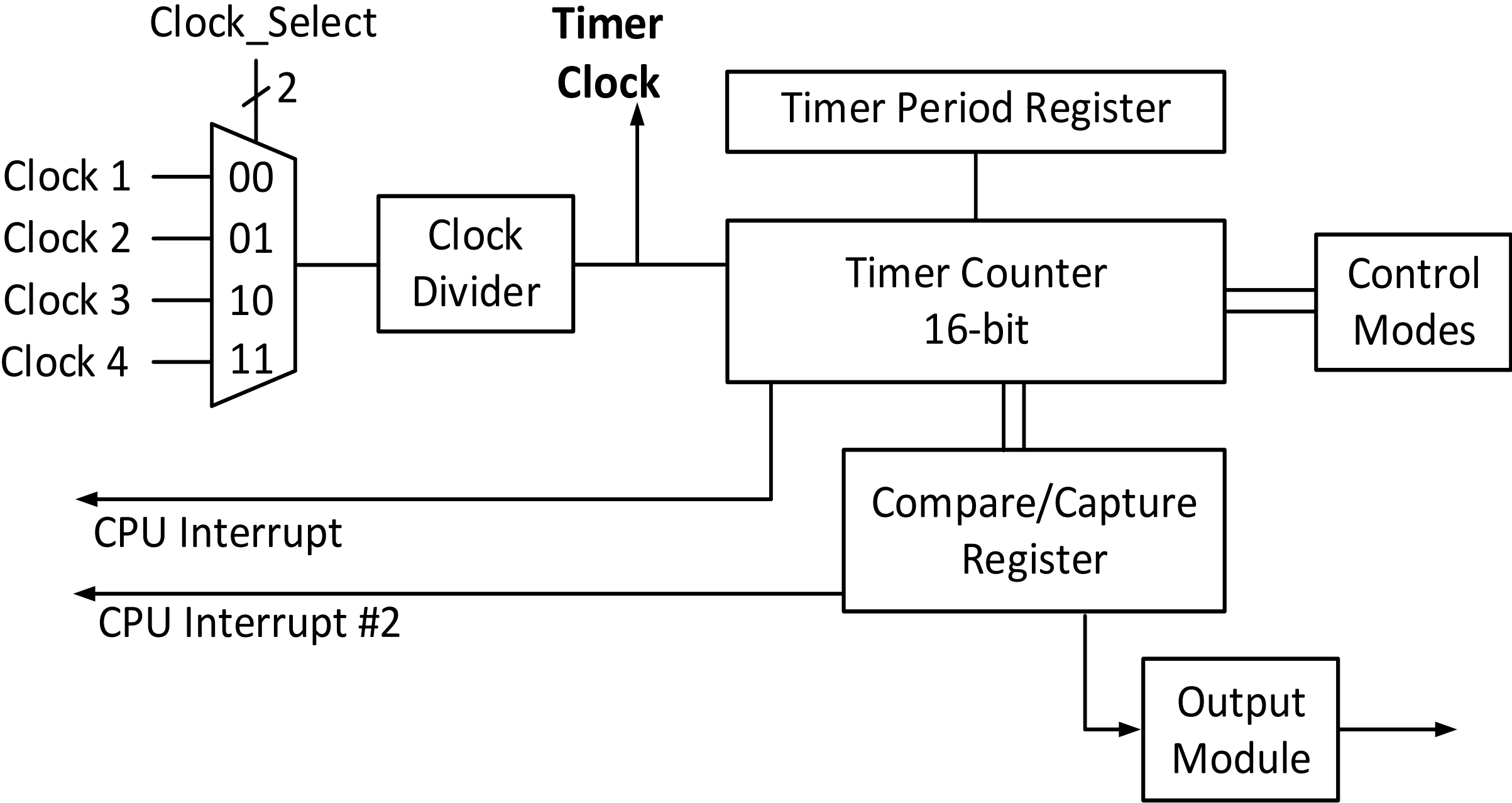


Consumer Electronics

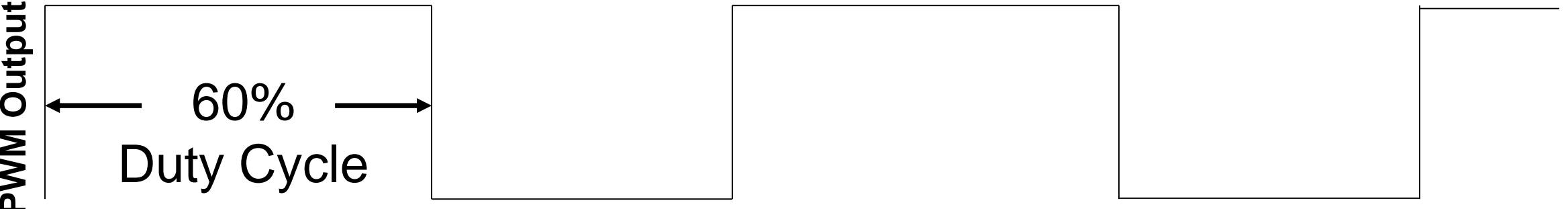
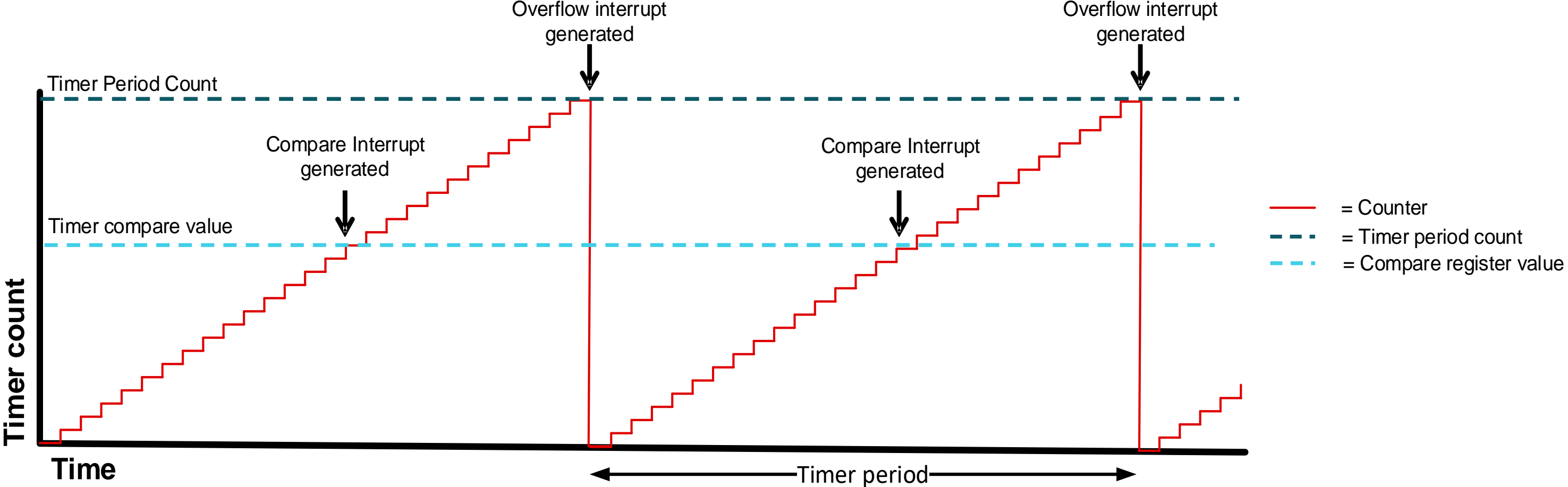
PWM Pin Configuration



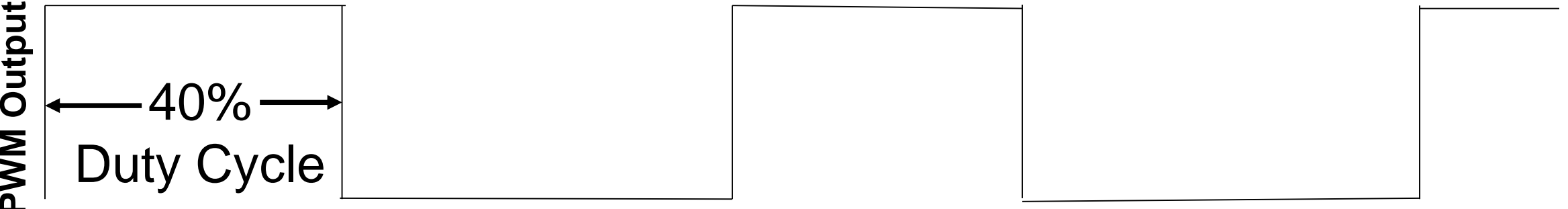
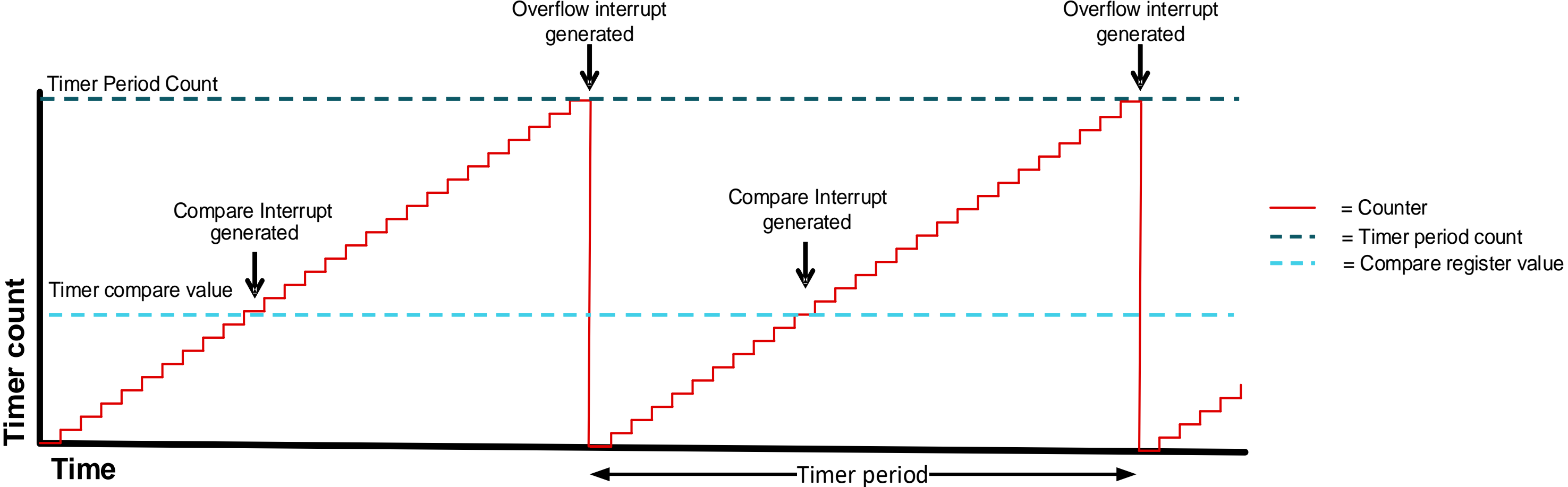
PWM Timer Operation



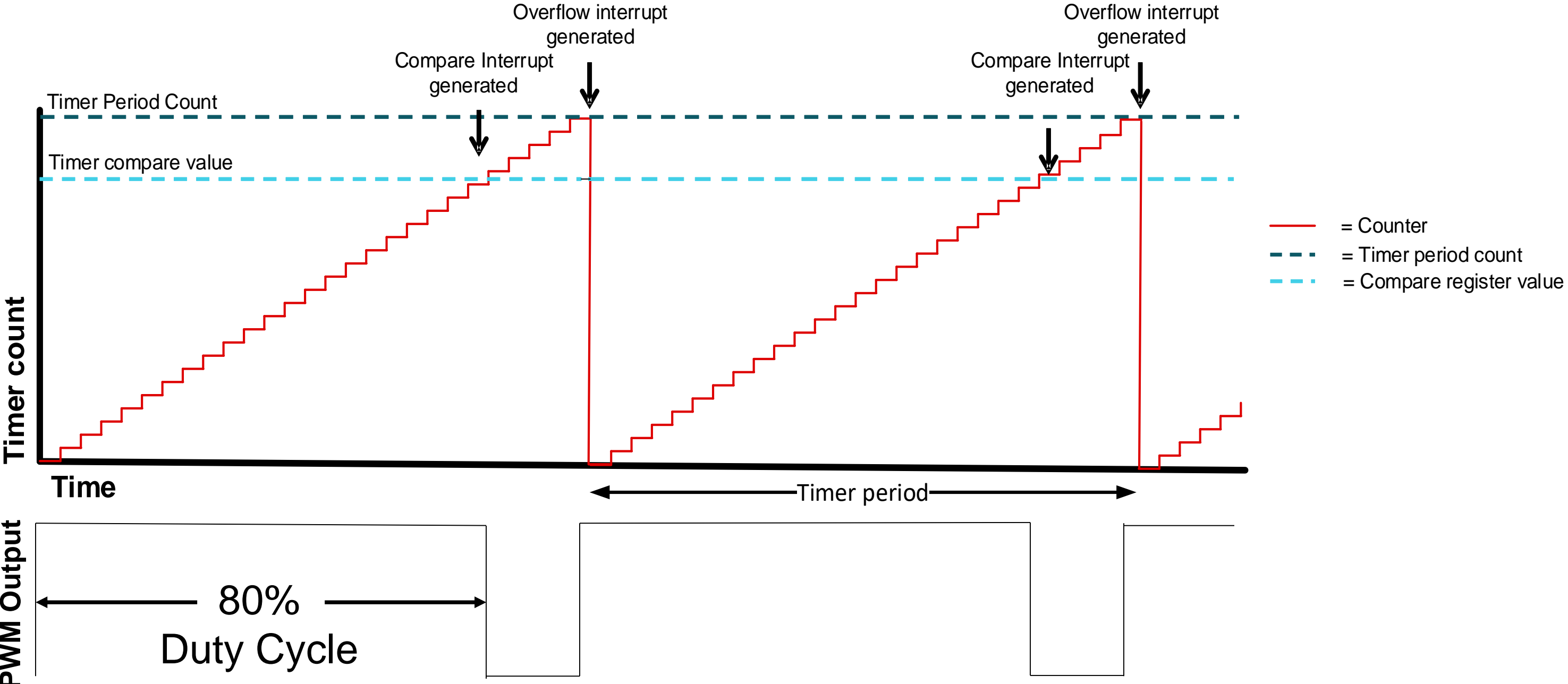
PWM Single Channel Operation



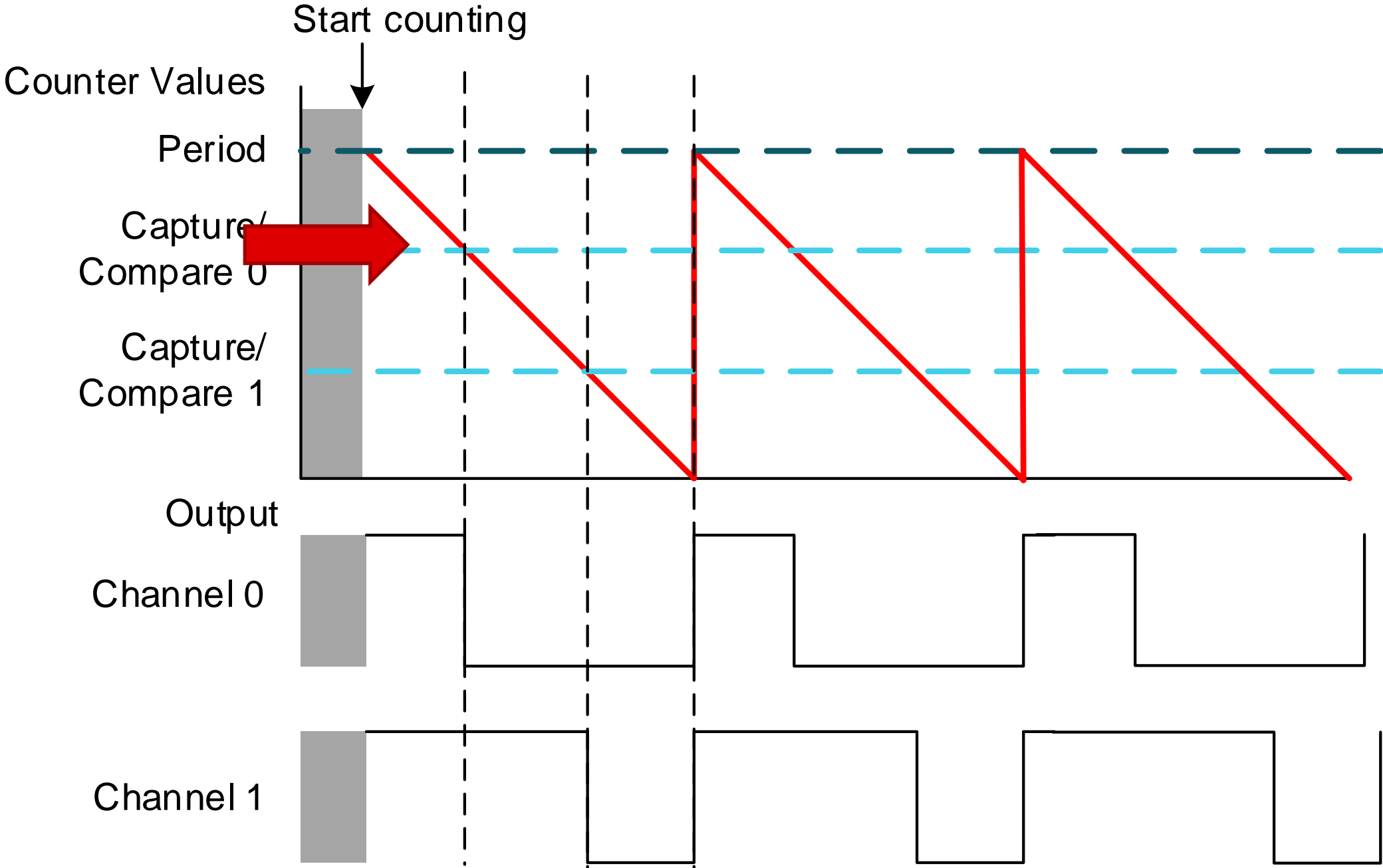
PWM Single Channel Operation



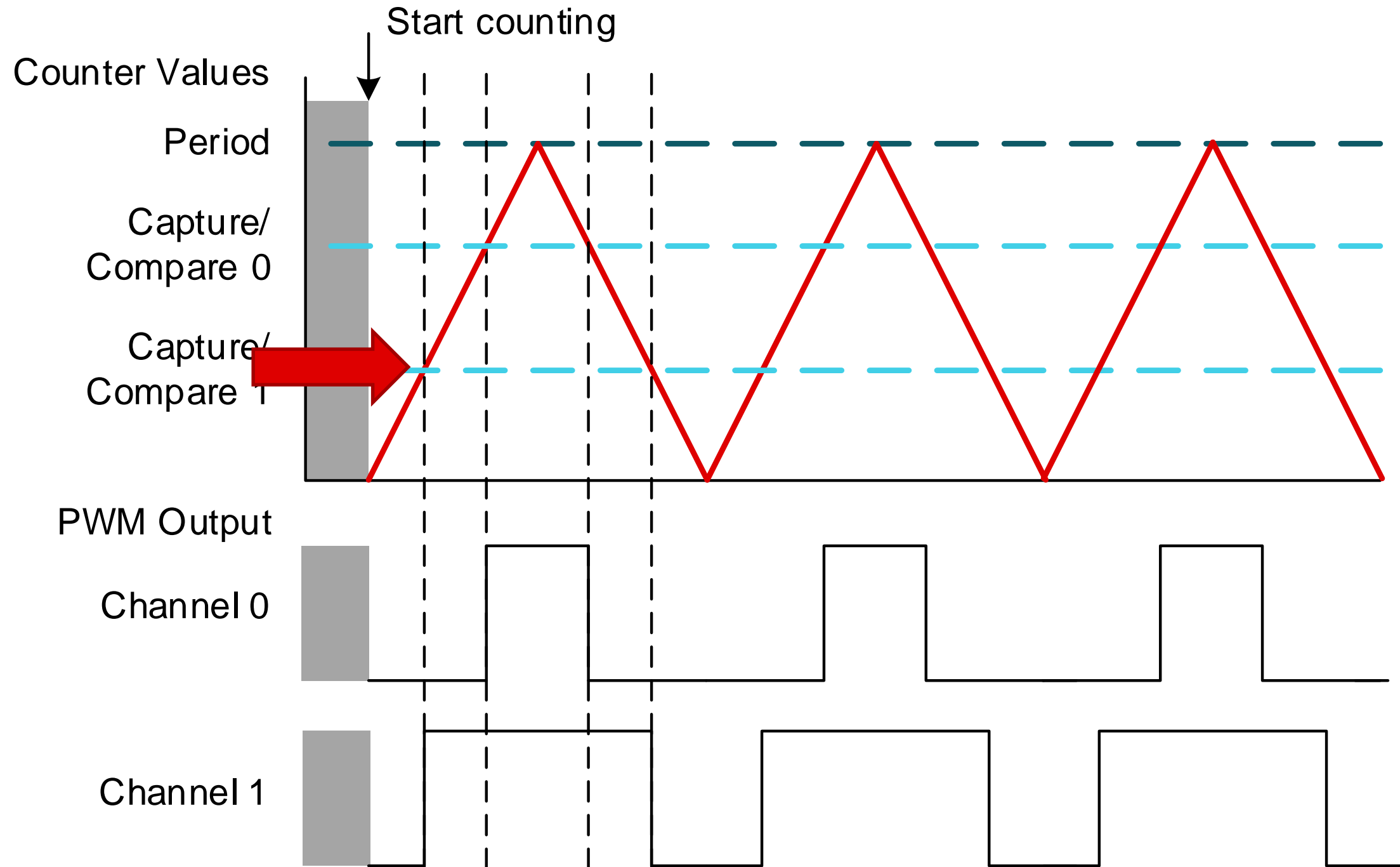
PWM Single Channel Operation



Edge Aligned PWM Channels



Center Aligned PWM Channels



PWM Summary

- Applications
- Pin Configuration
- Operation
- Edge Aligned PWM
- Center Aligned PWM

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