arm Education

Embedded Systems Essentials with Arm: Getting Started

Module 6

KV4 (6): Mbed API functions

Normally, the implementation of PWM is based on a conventional timer. In the Mbed API, the PWM functions are separated from the timer classes. Mbed provides many commands that implement the PWM functionality. Conveniently, the timer and compare registers do not need to be set manually, but write and read operations can be used instead. It is simpler to directly assign and read the duty cycles with left- and right-hand-side assignments. This table shows the Mbed API functions for PWM. These functions provide the ability to set the output duty-cycle as well as setting the PWM period and PWM pulsewidth in several formats.

Write and read operations can be replaced by the equal and float operators, which you can see in the bottom two rows of this table.

Here you can see an example where PWM is used to change the luminance of an LED. The default period is 0.020 seconds, and the default pulse width is 0.

By creating a PwmOut object ‘led’ in line 2, the duty cycle is changed in line 6 by the direct assignment of a value. By changing this value, the brightness of the LED is changed.