

Freescalé MQX RTOS Example Guide

PE demo example

This document explains the PE demo example, what to expect from the example and a brief introduction to the API used.

The example

The purpose of this demo is to use the Processor Expert (PE) component of Codewarrior Development Studio to interact with setting the characteristics of components associated with any MCU supported. This example makes usage of the Flextimer module and the GPIO module. After configuring these two peripherals user uses PE to generate code and runs project in the similar fashion as other examples.

Running the example

User needs to run PE in Codewarrior Development Studio to generate code prior to compilation of MQX libraries and the example itself.

To run the example the corresponding IDE, compiler, debugger and a terminal program are needed.

Explaining the example

The application example creates two tasks, namely `pwm_task` and `led_task`.

- **pwm_task:** Initialize the FTM module to run in PWM counter mode (with the period of 4096 system timer ticks set up via the PE tool). Enable the FTM module by calling functions `PWM_Init()` and `PWM_Enable()` generated by the PE tool. Print out dot character `\.` on the terminal every 250 ms with 80 dot characters every line on the terminal.
- **led_task:** Call function `GPIO1_Init()` generated previously by PE tool to initialize the LED. Toggle LED by a half of second using function `GPIO1_ToggleFieldBits` also generated earlier.

The following output is expected as we run the demo.

```
*****
*
*   This example demonstrates how to use Processor Expert to configure MQX BSP.
*   The application demo :
*   1. The PWM signal is generated using FlexTimer FTM0 Channel 0
*      It can be observed by scope on PWM0 - A40 pin
*      on TWR-ELEV FUNCTIONAL or TWR-PROTO board.
*   2. It also toggles LED1 on board using GPIO driver
*      to signalize that application is running.
*
*****

Initializing PWM device.....done
- PWM frequency          = 14648 Hz
The PWM signal is generated on FTM0 Channel 0

Initializing LED device.....done
.....
.....
.....
.....
.....
```