Demo Set-up

The SW MC56F84000_PWM_ADC_3trigger_single_channel demonstrates ADC and ePWM functionality, where in a single PWM cycle ADC is taking reading 3 times which can be used in slope compensation. It also has FreeMASTER communication with a PC Computer. It is targeted at MC56F84789 and its derivatives.

H/W Setup

The h/w consists of:

1. MAPS-MC56F84000 populated with MC56F84789 device

2. USB cable connected to MAPS OSBDM connector

3. 5V Power supply

Before the demo starts, the HW with OSBDM link needs to be set-up.

Application SW

The demo s/w is located in a folder MC56F84000_PWM_ADC_3trigger_single_channel.The s/w was designed using CodeWarrior CW10.x

Development Tools

In order to compile run, load and flash the demo the following s/w is necessary to:

1. Install CodeWarrior_CW_MCU_v10.x and Run the CodeWarrior

2. Drag and drop < MC56F84000_PWM_ADC_3trigger_single_channel\.project into the opened CodeWarrior CW10.x

3. Clean(if the project is the first time run in your workspace) and Build the application code target MC56F84789_Internal_PFlash_SDM

4. Connect a USB cable between the PC host and the mbed USB port (CN7 on the MAPS-56F84000 board).

5. Running/debugging loading the code:

    a. Run -> Debug Configuration

    b. Set the configuration for debug as download for SDM module.
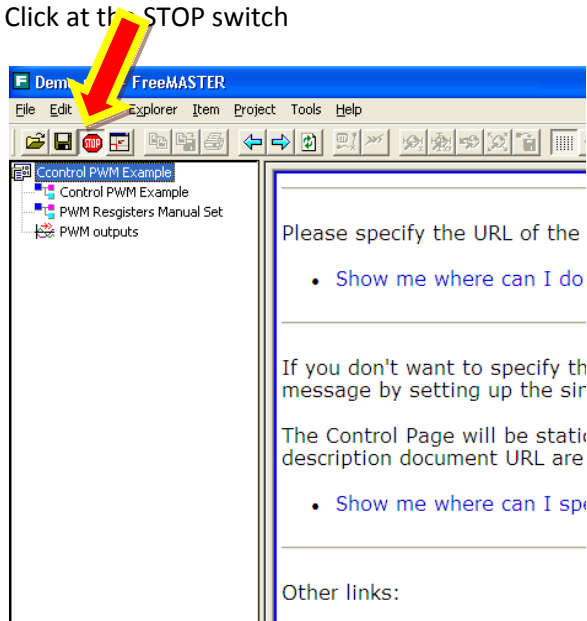
6. Click Debug

7. Start

Running the demo

Demo is to be controlled using a FreeMASTER communication tool. In order to control the application the following sw is necessary:
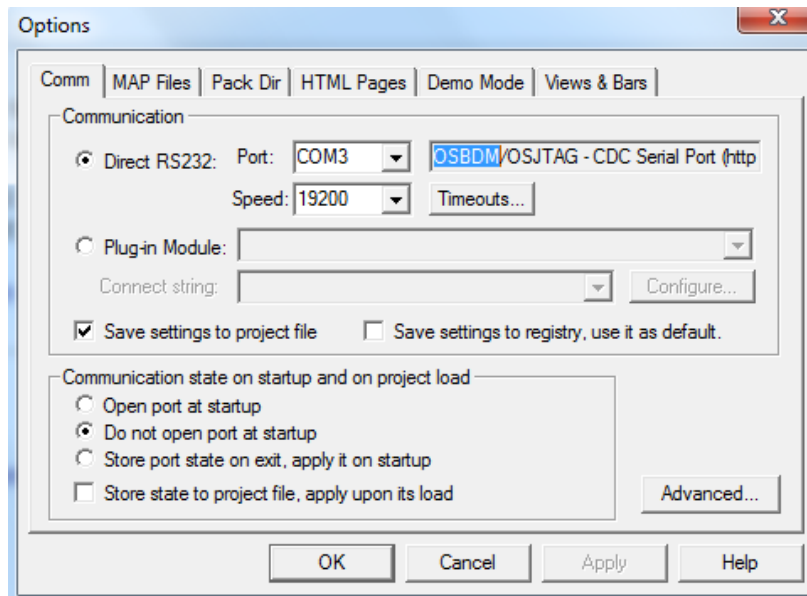
1. FreeMASTER Application Installation
   http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=FREEMASTER&parentCode=null

2. CodeWarrior Connection Server
   this is a part of Freescale CodeWarrior installation, located usually at C:\Freescale\CW MCU v10.6\MCU\ccs\bin
   but the ccs_bld000_win.zip can also be obtained without the CodeWarrior installation

The following steps are necessary (if continuing from debug mode, go to step 4 and when freemaster is in run state, terminate the code from CodeWarrior using terminate button):

1. Connect Power Supply

2. Connect OSBDM for FreeMASTER control

3. If the application s/w is not programmed into the MAPS_84000 board, go to section Application SW

4. Install FreeMASTER Application

5. Start FM_MC56F84000_PWM_ADC_3trigger_single_channel.pmp (FreeMASTER Application must be installed before)

6. If the FreeMASTER is not connected (variables values are: ?), check:

   a. Click at the STOP switch

b. If an error message is generate after STOP switch click, go to Project/Options Com slider and set the Direct RS232 Port and Speed
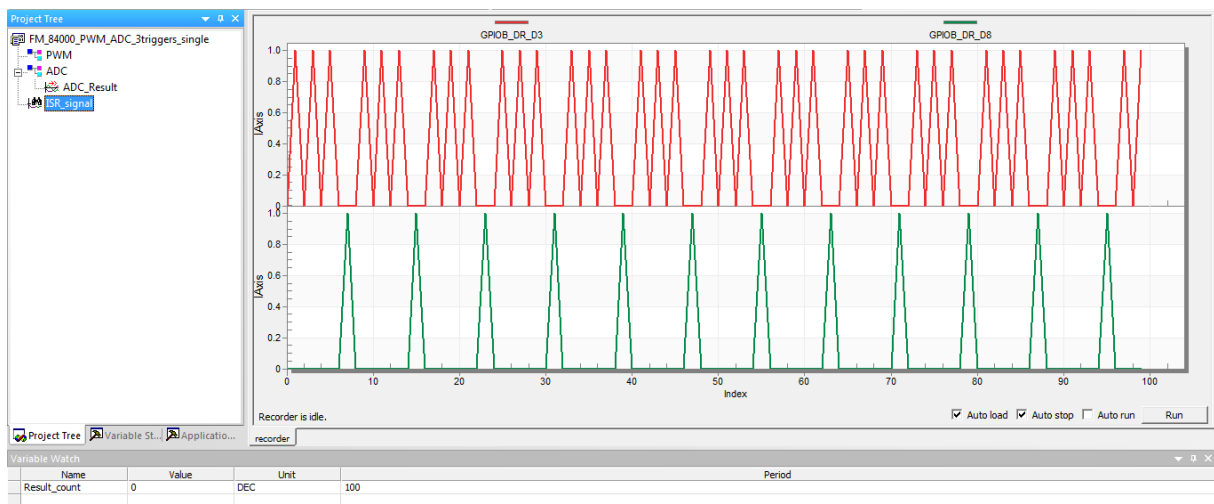

7.   And the application is running with FreeMASTER.

FreeMASTER Control

ADC trigger signals

You can see and check the ADC triggers and PWM Reload signal (one time per period) in the FreeMASTER recorder, represent as GPIOB_DR_D3, GPIOB_DR_D8 respectively.

These signals can also be seen on the pins:

1. GPIOB3– pin42

2. GPIOB8– pin38

result signals

In ADC scope, w16Adc_result0_1 , w16Adc_result0_2 and w16Adc_result0_3 value will reflect the status of ANA0 sampled in different times respectively.

1. ANA0 – pin22

The PWM outputs are available on the pins

PWMs with center aligned PWM signals

1. PWMA_0B – pin68

2. PWMA_0A – pin69