Demo Set-up

The SW MC56F84000_PWM_variable_phase demonstrates ePWM module in complementary mode configuration with varying phase between the two modules (SM0/SM1) of PWM (varying from 0-50%) and 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_variable_phase.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_variable_phase\.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. Either press the reset button on your board or launch thee debugger in your IDE to begin running the demo.

5. Running/debugging loading the code:

   a. Run -> Debug Configuration

   b. Set the configuration for debug as download.

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, goto 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_variable_phase .pmp (FreeMASTER Application must be installed before)

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

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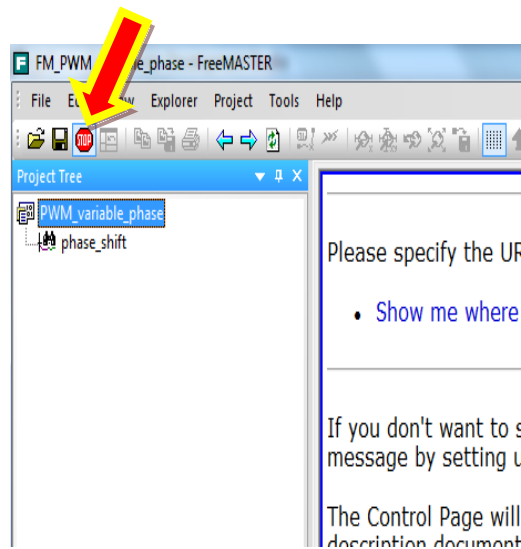
b. If en error message is generate after STOP switch click, go to Project/Options Com slider and set the Direct RS232 Port and Speed
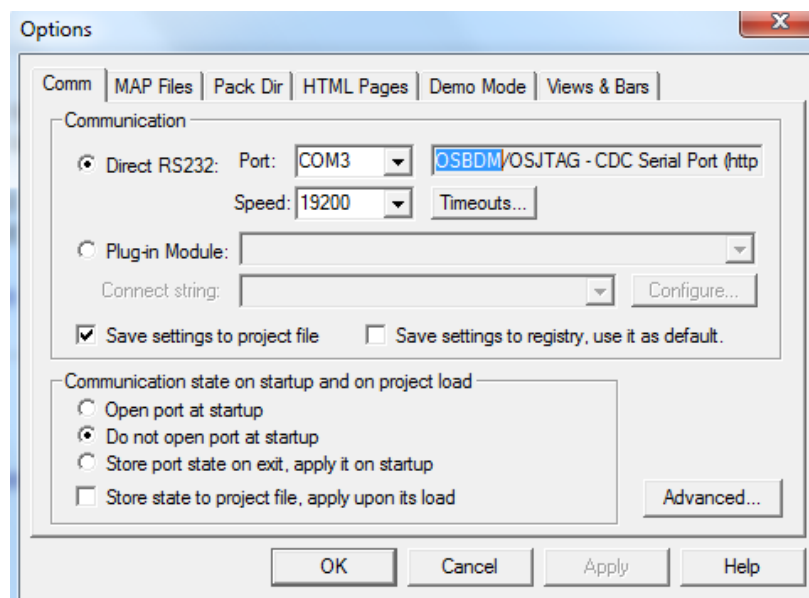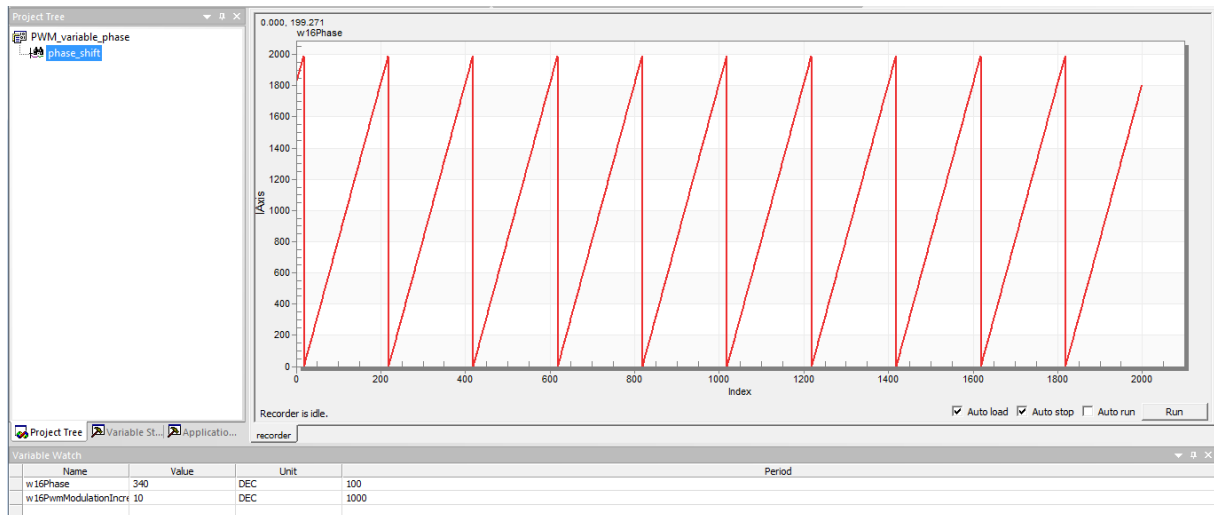

7. And the application is running with FreeMASTER.

FreeMASTER Control

You can see and check the phase shift between the two PWM modules (both in complementary mode) in the FreeMASTER recorder, named as phase_shift as follows:

The phase shift will vary from 0 to 50% and duty cycle of all the PWM is 50%.

The PWM outputs are available on the pins (Duty cycle of all the PWMs out is fixed value of 50%)

SM0:

1. PWMA_0B – pin68

2. PWMA_0A – pin69

SM 1:

1. PWMA_1B – pin74

2. PWMA_1A – pin75