Freescale Semiconductor
Quick Start Guide

DEMO9S12XDT512

Quick Start Guide

Introduction and Default Settings

This guide will walk you though how to connect the board to your PC, run the LED test program, install the correct version of CodeWarrior Development Studio, modify the LED test program, and reprogram the MCU on the board. Source code for DEMO9S12XDT512_LED (LED test program) is on the Axiom CD in the "Examples" folder.

Figure 1 shows the default settings for the DEMO9S12XDT512 demo board. Please refer to the DEMO9S12XDT512 User's Guide on the Axiom CD for information on other configurations. Black blocks indicate the "on" or "installed" position of jumpers. Please check these settings before continuing.
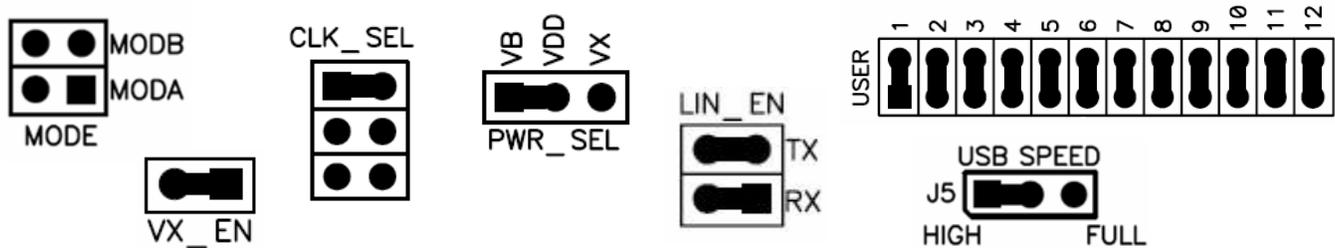
Figure 1. DEMO9S12XDT512 Default Settings

Run the DEMO9S12XDT512_LED Program

The DEMO9S12XDT512 is shipped with a pre-installed program called DEMO9S12XDT512_LED. You may view the source code for this program by accessing the "DEMO9S12XDT512_LED.zip" file on the Axiom CD (located in the "Examples" folder).

1. Check the jumper settings and make sure they are in the default position. Use Figure 1 as a guide.
2. Connect the USB cable to the PC and then to the board. If you are using this board for the first time, please follow the instructions on the screen to install the USB device properly.
3. After the USB drivers are installed correctly, the USB LED, USB PWR OUT, and +5V LED will be on.
4. Press SW1 and LED1 and LED2 will turn on. Release SW1 and LED1 and LED2 will turn off.
5. Press SW2 and LED3 and LED4 will turn on. Release SW2 and LED3 and LED4 will turn off.

Install CodeWarrior Development Studio Version 4.1 for S12X

If you do not have CodeWarrior Development Studio for the S12X version 4.1 or later installed on your computer, please refer to the provided "CodeWarrior Development Studio" DVD case. Follow the steps in the quick start guide to properly install CodeWarrior Development Studio.

Important: You must register and obtain a special edition license key to use CodeWarrior. This license key allows you to experience all the features of the Special Edition CodeWarrior Development Studio.

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Modify and Installing New DEMO9S12XDT512_LED Program

The on-board USB-to-BDM design allows a user to program the MCU Flash and debug application via USB connection.

1. Copy the "DEMO9S12XDT512_LED.zip" file from the Axiom CD (examples folder) to your PC. Extract the files into a working folder on your desktop. **Note:** Be sure to <u>extract</u> and *not* just copy the files.
2. Open CodeWarrior HCS12X v4.1 or later. Open the "DEMO9S12XDT512_LED.mcp" project file located in the working folder you created in step one.
3. Open the source file called "DEMO9S12XDT512_LED.c" by double clicking on "DEMO9S12XDT512_LED.c" file in the left-hand window.
4. Check the jumper settings and make sure they are in the default position. Use figure 1 as a guide.
5. If you have not already done so, connect the USB cable. The USB LED, USB PWR OUT, and +5V LED should be on.
6. Modify the source code by making the following changes in the "main" routine as shown below.

**Remove
(or Comment Out)**
```
/**** Use SW1 and SW2 to control the LEDs ****/
LED1 = SW1;      // Turns on or off LED1
LED2 = SW1;      // Turns on or off LED2
LED3 = SW2;      // Turns on or off LED3
LED4 = SW2;      // Turns on or off LED4
```

**Add
(or Uncomment)**
```
/**** Use SW3 (1-4) to control the LEDs ****/
LED1 = SW31;     // Turns on or off LED1
LED2 = SW32;     // Turns on or off LED2
LED3 = SW33;     // Turns on or off LED3
LED4 = SW34;     // Turns on or off LED4
```

1. Click on "Debug" under Project in the menu bar or hit "F5." The True-Time Simulator & Real-Time Debugger interface window will appear. Please follow the instructions on the screen to complete the Flash programming process.
2. After the debugger has programmed the MCU on the board, you are now ready to run the modified DEMO9S12XDT512_LED code.
3. Click on the green arrow in the toolbar at the top of the screen to run the program. Once you click this button, a message in the command window (bottom right-hand side) should say "RUNNING".
4. LED1, LED2, LED 3, and LED4 will change according to position of the corresponding SW31, SW32, SW33, or SW34.

Troubleshooting

+5V LED does turn on

- Make sure the "PWR_SEL" jumper is in the VB position.
- Change the USB_SPEED jumper from HIGH to FULL.
- Install the CWS12X V4.1 P&E USB2.0 Service Pack.

Unable to program the part using USB-to-BDM

- Install the CWS12X V4.1 P&E USB2.0 Service Pack.
- Make sure the "PWR_SEL" jumper is in the VB position.
- Change the USB_SPEED jumper from HIGH to FULL.
- Make sure all the jumpers on the board are in the default position. Refer to Figure 1.
- Make sure that the target in CodeWarrior is pointing to the P&E ICD.