MC9S08LL64
S08 ultra-low-power
LCD segment MCU

freescale
semiconductor

Get to know the TWR-S08LL64

Tower Card Connector (Secondary)

LCD Display

Potentiometer

RS232 PORT

LED4/SW4
LED3/SW3
LED2/SW2
LED1/SW1

MC9S08LL64 MCU

Mini-B USB Connector

Reset Button

3-Axis Accelerometer MMA7361L

Light Sensor

Buzzer

Crystal

Tower Card Connector (Primary)
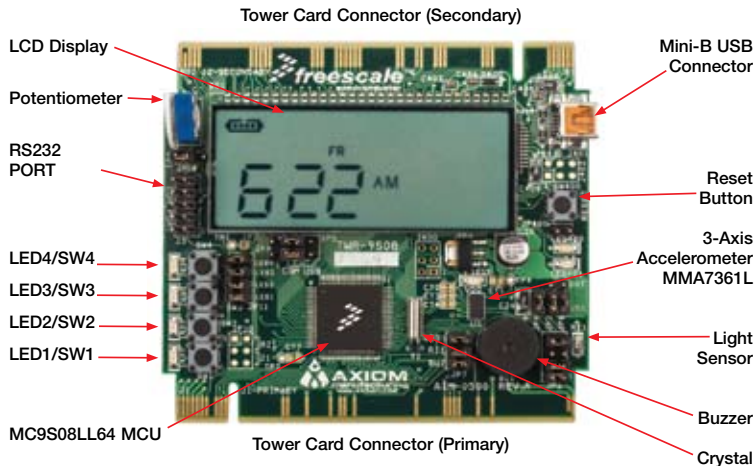
TWR-S08LL64-KIT
Freescale Tower System

The TWR-S08LL64 module is part of the Freescale Tower System, a modular development platform that enables rapid prototyping and tool re-use through reconfigurable hardware. Take your design to the next level and begin constructing your Tower System today. The TWR-9S08LL64 -KIT comes with two elevator modules (TWR-ELEV) and a prototype module (TWR-PROTO).

Introduction

The MC9S08LL64 device is one of Freescale's low-power microcontrollers with an integrated liquid crystal display (LCD) driver. The TWR-S08LL64 module contains an on-module display that allows developers to explore software development using the integrated LCD driver. This quick start guide is designed to get you ready to develop your next LCD application using the MC9S08LL64 within minutes.

Step-by-Step Installation Instructions

After completing the steps in this quick start guide take a look at the TWR-S08LL64 Labs Tutorial document (TWR9S08LL64LAB) included in the Training section of the DVD to learn more about the key benefits that MC9S08LL64 provides your application.

STEP 1

Install software and tools

Please insert the provided DVD into your computer. After the initial screen appears, install CodeWarrior™ development tools in the order listed below. Follow the prompts through the installation of each component, answering each prompt with the default input.

1. Install CodeWarrior Development Studio for Microcontrollers v6.2 Special Edition

2. Install Processor Expert Update v3.06

3. Install CodeWarrior™ Service Pack v6.2 for MC9S08LL64

4. Install CodeWarrior Compiler Patch v6.2.2

5. Install P&E toolkit

6. Install the two CodeWarrior project files by selecting the Software tab and click the Lab Software Projects link. This will begin extraction of the two project files listed below. Place them in a new My Documents\ TWRLL64 folder on the hard disk of your computer.

   • TWRLL64_Quick_Start
   • TWRLL64_Accelerometer

STEP 2

Set up the TWR-S08LL64 module

1. Remove the TWR-S08LL64 module from anti-static pouch. Make sure the jumpers are in the default positions (see diagram on next page).

2. This symbol ● ● indicates **no** jumper is installed.

3. Connect provided USB cable from a free USB port on your computer to the mini-B USB connector on the TWR-S08LL64 module. Allow the PC to automatically configure the USB drivers as needed. USB drivers for your TWR-S08LL64 module were pre-loaded in the CodeWarrior installation.

STEP 3

Start CodeWarrior and debug environment

1. Start CodeWarrior by selecting it from the Windows Start menu.

2. From the CodeWarrior main menu, choose **"File > Open"** and choose the **PE_LL64_Quick_Start.mcp** that is found in the My Documents\ TWRLL64 folder on the hard disk of your computer created in step 1.

   This is the on-board example you copied from the Getting Started DVD included with the Tower module tool kit.

3. Click **"Open"** to open the project window.
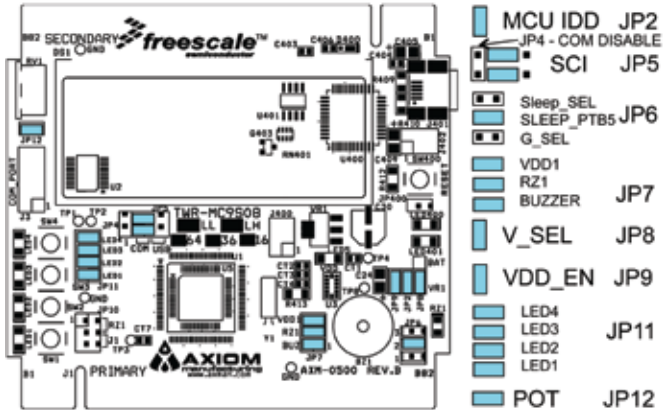
4. The main portion of the C code for this example is contained in the **"LL64_Demo.c"** file. Open this file to review the code.

5. From the main menu, choose **"Project > Debug."** This will compile the source code, generate an executable file and download it to the demo TWR-S08LL64 module.

6. If prompted, set the connection to HCSO8 and Freescale open source BDM. If the derivative is not set, select MC9S08LL64 from the list. If any further prompts appear, please select "**OK**." A new debugger environment will open.

STEP 4

Run and debug example code on TWR-S08LL64 module

1. From the main menu, choose **"Run > Start/Continue."** The program will be executed in real–time.

2. From the main menu, choose **"Run > Halt."** The program execution will stop. The next instruction to be executed is highlighted in the source window.

3. From the main menu, choose **"Run > Single Step."** The instruction highlighted in the source window will be executed and the program execution will be stopped immediately.

4. From the main menu, choose **"Run > Start/Continue."** The application will restart from where it was previously stopped.

5. Now that you have successfully completed the software and hardware setup, test your TWR-S08LL64 module by running the Tower module application pre-loaded in the microcontroller's on-chip flash memory. For more detailed information on how to use the demonstration code, please refer to the TWR-S08LL64 Labs Tutorial.

Learn more about the MC9S08LL64 and software

Additional information can be found in the documentation and training tab of the enclosed DVD.

MC9S08LL64 documents:

- MC9S08LL64 Reference Manual
- MC9S08LL64 Data Sheet

TWR-S08LL64-KIT documents:

- Tower Module Schematics
- Tower Module LCD Glass Specifications
- Three Axis Low-g Micromachined Accelerometer Data Sheet

Learn more at www.freescale.com/tower and
www.freescale.com/lcd.

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