EK-TM4C123GXL-BOOST-CAPSENSE Firmware Development Package

USER'S GUIDE

SW-EK-TM4C123GXL-BOOST-CAPSENSE-UG-2.0

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Revision Information

This is version 2.0 of this document, last updated on August 29, 2013.

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1 Introduction

The Texas Instruments® Tiva™ C Series EK-TM4C123GXL-BOOST-CAPSENSE evaluation board (Tiva C Series TM4C123G LaunchPad) is a low cost platform that can be used for software development and to prototype a hardware design. A variety of BoosterPacks are available to quickly extend the LaunchPads features.

This document describes the example applications that are provided for the EK-TM4C123GXL-BOOST-CAPSENSE when paired with the 430BOOST-SENSE1 BoosterPack commonly known as the Capacitive Touch BoosterPack. The TM4C123GH6PM Tiva C Series micro-controller does not have the capacitive sense hardware assistance features like those of the certain MSP430™ devices. Therefore, these example applications assume that the user has added the optional resistors to the 430BOOST-SENSE1 BoosterPack. Resistance value of 200k ohms is recommended. See `http://processors.wiki.ti.com/index.php/tm4c123g-launchpad` for calibration procedure.

2 Example Applications

The example applications show how to use features of the Cortex-M4F microprocessor, the peripherals on the Tiva C Series microcontroller, and the drivers provided by the peripheral driver library. These applications are intended for demonstration and as a starting point for new applications.

There is an IAR workspace file (`ek-tm4c123gxl-boost-capsense.eww`) that contains the peripheral driver library project, USB library project, and all of the board example projects, in a single, easy to use workspace for use with Embedded Workbench version 6.

There is a Keil multi-project workspace file (`ek-tm4c123gxl-boost-capsense.mpw`) that contains the peripheral driver library project, USB library project, and all of the board example projects, in a single, easy to use workspace for use with uVision.

All of these examples reside in the `examples/boards/ek-tm4c123gxl-boost-capsense` subdirectory of the firmware development package source distribution.

2.1 Capacitive Touch Example (capsense)

An example that works with the 430BOOST-SENSE1 capactive sense BoosterPack, originally designed for the MSP430 LaunchPad.

The TM4C123GH6PM does not have the capacitive sense hardware assisted peripheral features of some MSP430 chips. Therefore it is required that the user install surface mount resistors on the pads provided on the bottom of the capacitive sense BoosterPack. Resistor values of 200k ohms are are recommended. Calibration may be required even when using 200k ohm resistors as each capsense booster pack varies. Calibration is required for resistors other than 200k ohm.

See the wiki page for calibration procedure. `http://processors.wiki.ti.com/index.php/tm4c123g-la`

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