

FEATURES

- adapts between Silicon Labs™ USB Debug Adapter 10 pin IDC connector and a 3 pin connector on the target board
- reset switch
- power good LED
- program cable with 3 pin 2mm connector
- conformal coated and insulated
- saves space on target PCB

DESCRIPTION

The E1947 3 Pin C2 Programming Adapter allows Silicon Labs™ microcontroller designs to use a small 3 pin connector for programming instead of the 10 pin IDC interface from the USB Debug Adapter. All isolation circuitry for the C2 data and C2 clock is included, as well as a reset switch and USB power good LED. This simplifies the target board to only a 3 pin programming connector for the C2 data, clock, and ground. The interface includes a strain relieved programming cable with a 3 pin 2mm machined contact male header connector. The module is insulated to protect against unintentional minor electrical contact. Custom programming cables can be added at the spare connector areas on the board.

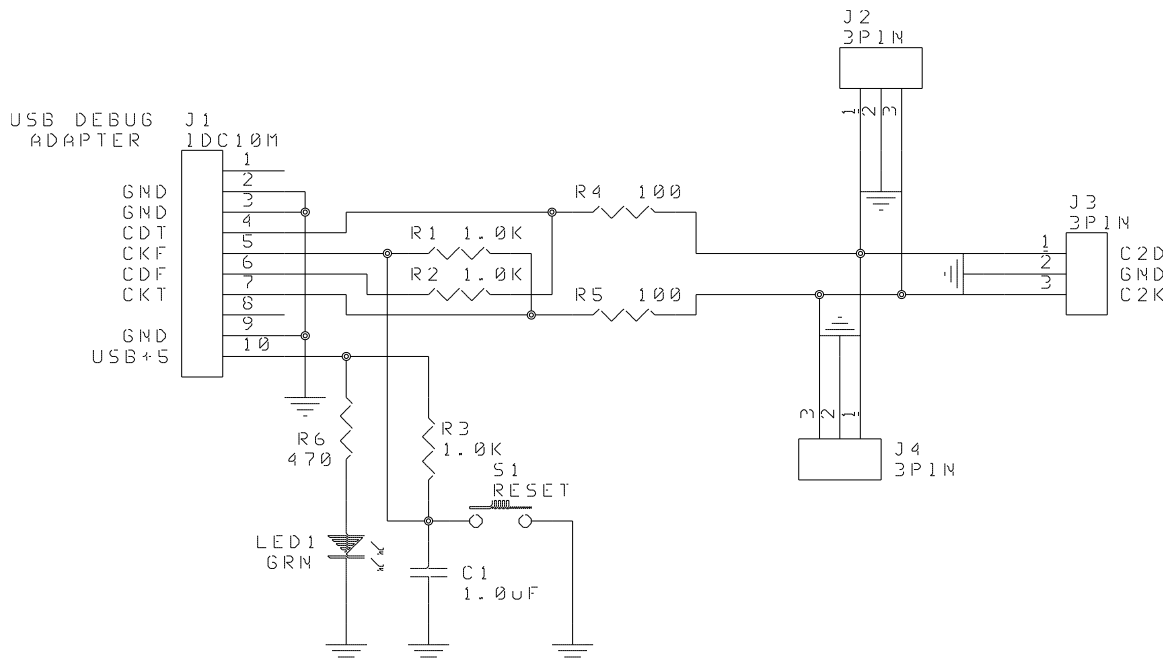


Figure 1. Module Schematic

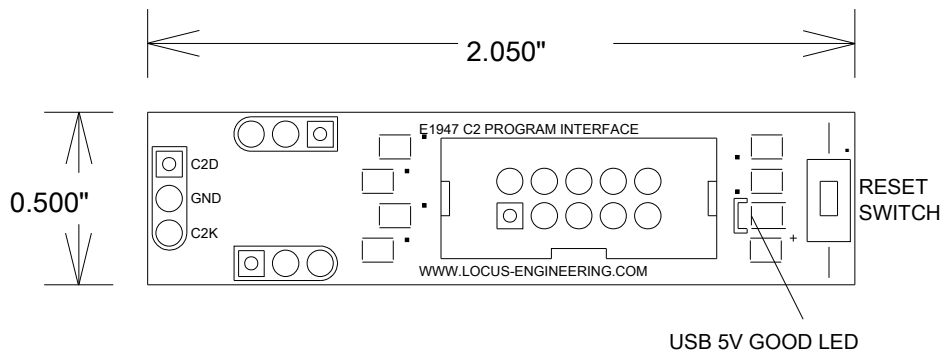


Figure 2. Module Dimensions

Name	Description	Connector Pad
C2D	C2 Serial Data	Square pad
GND	Ground	Middle round pad
C2K	C2 Serial Clock	Outside round pad

Table 1. C2 Connector Description

Installation

Connect the Silicon Laboratories™ USB Debug Adapter™ IDC connector to the E1947 adapter. The green LED indicates when the USB 5V is on. Note that the USB 5V is not used to power the target board.

Connect the 3 pin 2mm connector from the E1947 adapter to the target board such that the C2D and C2K signals go to the microcontrollers' corresponding pins.

Open the Silicon Labs IDE program.

Power the target board.

Connect to the target board using the IDE program. Check that the Power and Run/Stop LEDs on the USB Debug Adapter are both on.

If the IDE hangs up due to static events for example, unplug the USB cable, wait a second, reconnect it, then reconnect to the target board using the IDE program.

If the C2D and C2K signals are reversed, the IDE will not connect but there will be no damage. Simply reverse the connection and reconnect using the IDE program.

The reset switch can be used to reset the program on the microcontroller while it is running.

Programming Cable Options

The other 3 pin C2 connections on the E1947 board can be used for custom cables with connectors other than 2mm pitch. All Locus Engineering microcontroller development boards include 2mm connectors with machined contacts compatible with the E1947 adapter and included cable. If other programming connectors are used, protect the existing one from inadvertent electrical contact with heat shrink or tape.

Custom cables can be strain relieved with silicone sealant where the cable attaches to the board.

Programming Connector Options

For prototyping it is best to use mating connectors on the target board for programming. In production however, the C2 connector on the target board is not needed as only the through hole pads are sufficient. Simply place the E1947 adapter cable connector into the C2 location on the target board and press the connector gently on an angle to ensure contact while the programming takes place. Alternatively, a 3 pin cable with spring loaded pogo pins can be used as well.

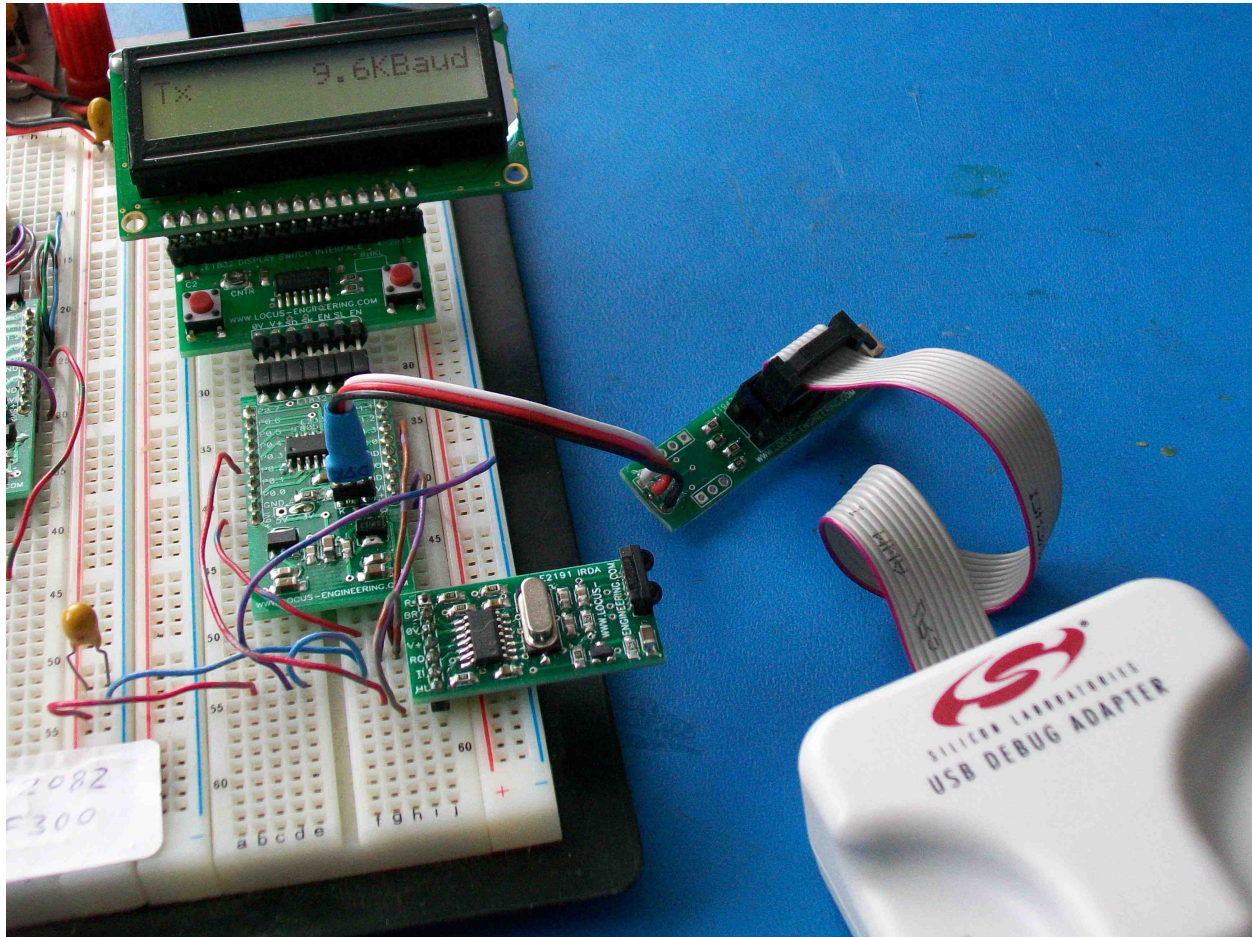


Figure 1. Example Setup of E1947 3 Pin C2 Programming Adapter

General Precautions

Charged devices and circuit boards can discharge without warning. Proper ESD precautions should be followed to avoid failure.

This device is not authorized for use in any product where the failure or malfunction of the product can reasonably be expected to cause failure in a life support system or to significantly affect its operation.

Locus Engineering Inc. reserves the right to make changes at any time without notice to improve product features or reliability.

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