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# LINEAR TECHNOLOGY LTC2451 6-Bit Delta Sigma Adc With I2c Interface User Guide

**QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1383**
**16-BIT DELTA SIGMA ADC WITH I2C INTERFACE**
**LTC2451**

## Contents

## DESCRIPTION

Demonstration circuit 1383 features the LTC2451, a 16 bit high performance analog-to-digital converter (ADC) with an I2C interface. The input is bipolar with a range of Ref-to Ref+. The modulator's proprietary sampling technique reduces the average input current to less than 50nA  orders of magnitude lower than typical delta sigma ADCs. The LTC2451 is available in an 8 pin, 3x2mm DFN package and has an easy to use I2C interface.

DC1383 is a member of Linear Technology`s Quick Eval™ family of demonstration boards. It is designed to allow easy evaluation of the LTC2451 and may be connected directly to the target application's analog signals while using the DC590 USB Serial Controller board and supplied software to measure performance. The exposed ground planes allow proper grounding to prototype circuitry. After evaluating with Linear Technology's software, the digital signals can be connected to the end application's processor / controller for development of the serial interface.

**Design files for this circuit board are available. Call the LTC factory.**
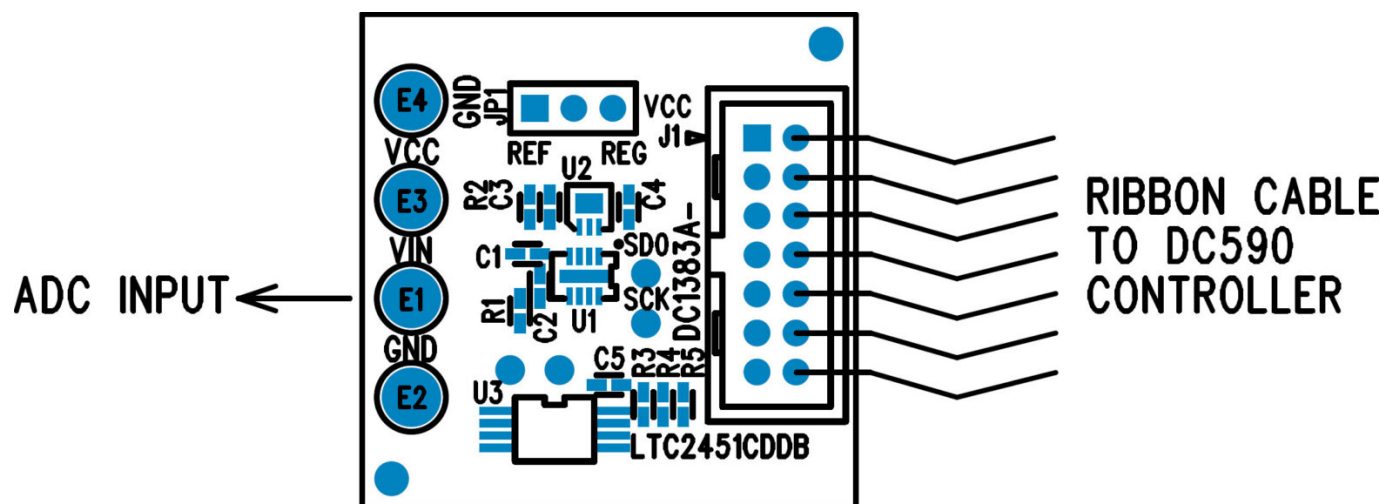LTC is a trademark of Linear Technology Corporation



**Figure 1. Proper Measurement Equipment Setup**

## QUICK START PROCEDURE

Connect to a DC590 USB Serial Controller using the supplied 14 conductor ribbon cable. Connect DC590 to host PC with a standard USB A/B cable. Run the evaluation software supplied with DC590 or downloaded from **http://www.linear.com/software**.
The correct program will be loaded automatically. Click the COLLECT button to start reading the input voltage. Details on software features are documented in the control panel's help menu. Tools are available for logging data, changing reference voltage, changing the number of points in the strip chart and histogram, and changing the number of points averaged for the DVM display.

**Figure 2. Software Screenshot**
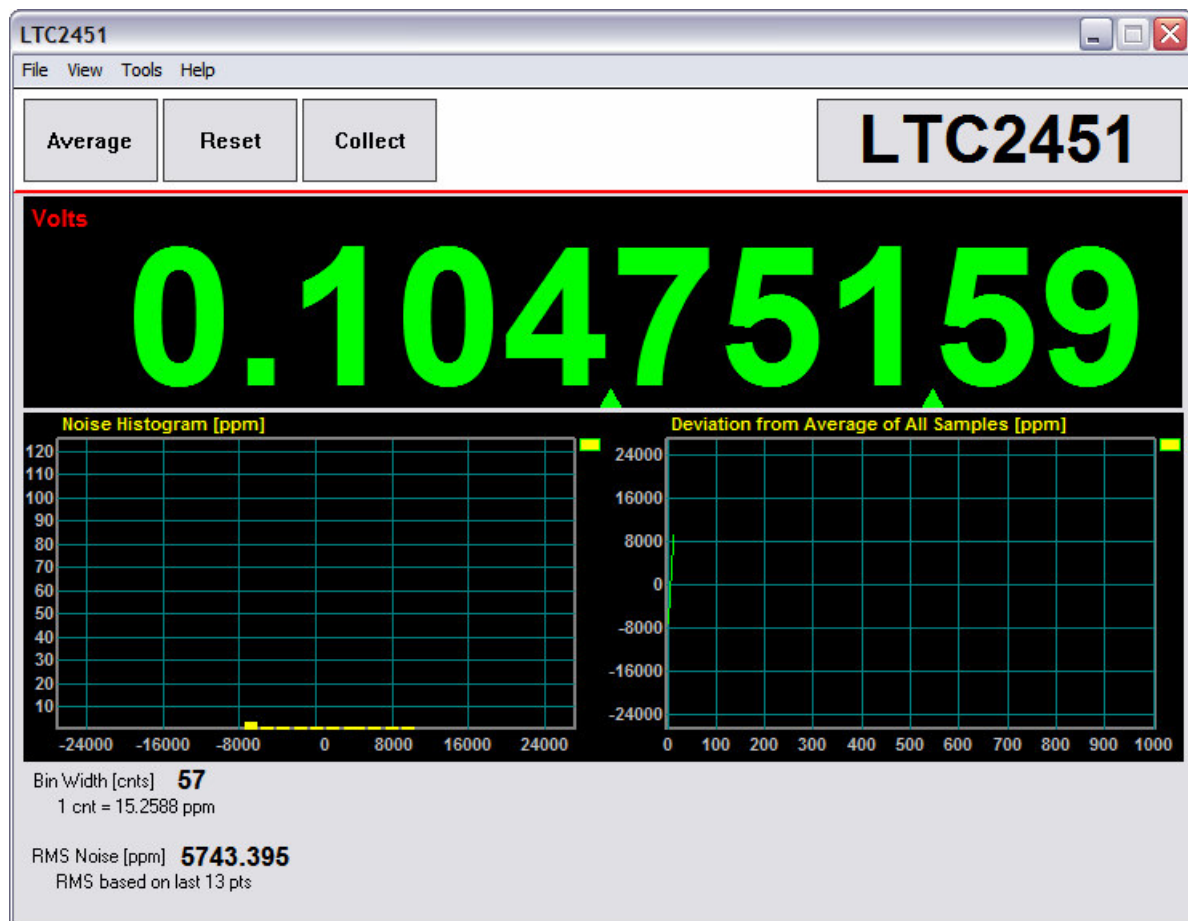
## HARDWARE SET-UP

### CONNECTION TO DC590 SERIAL CONTROLLER
J1 is the power and digital interface connector.
Connect to DC590 serial controller with supplied 14 conductor ribbon cable.

### JUMPERS
JP1 – Select the source for REF+, either an LT66605 or from an external source connected to the Ref+ turret post.

### ANALOG CONNECTIONS
Analog signal connections are made via the row of turret posts along the edge of the board. Also, when connecting the board to an existing circuit the exposed ground planes along the edges of the board may be used to form a solid connection between grounds.
GND – This turret is connected directly to the internal ground planes.
VCC – This is the supply and reference voltage for the ADC. Do not draw any power from this point.
Vin- This is the input to the ADC
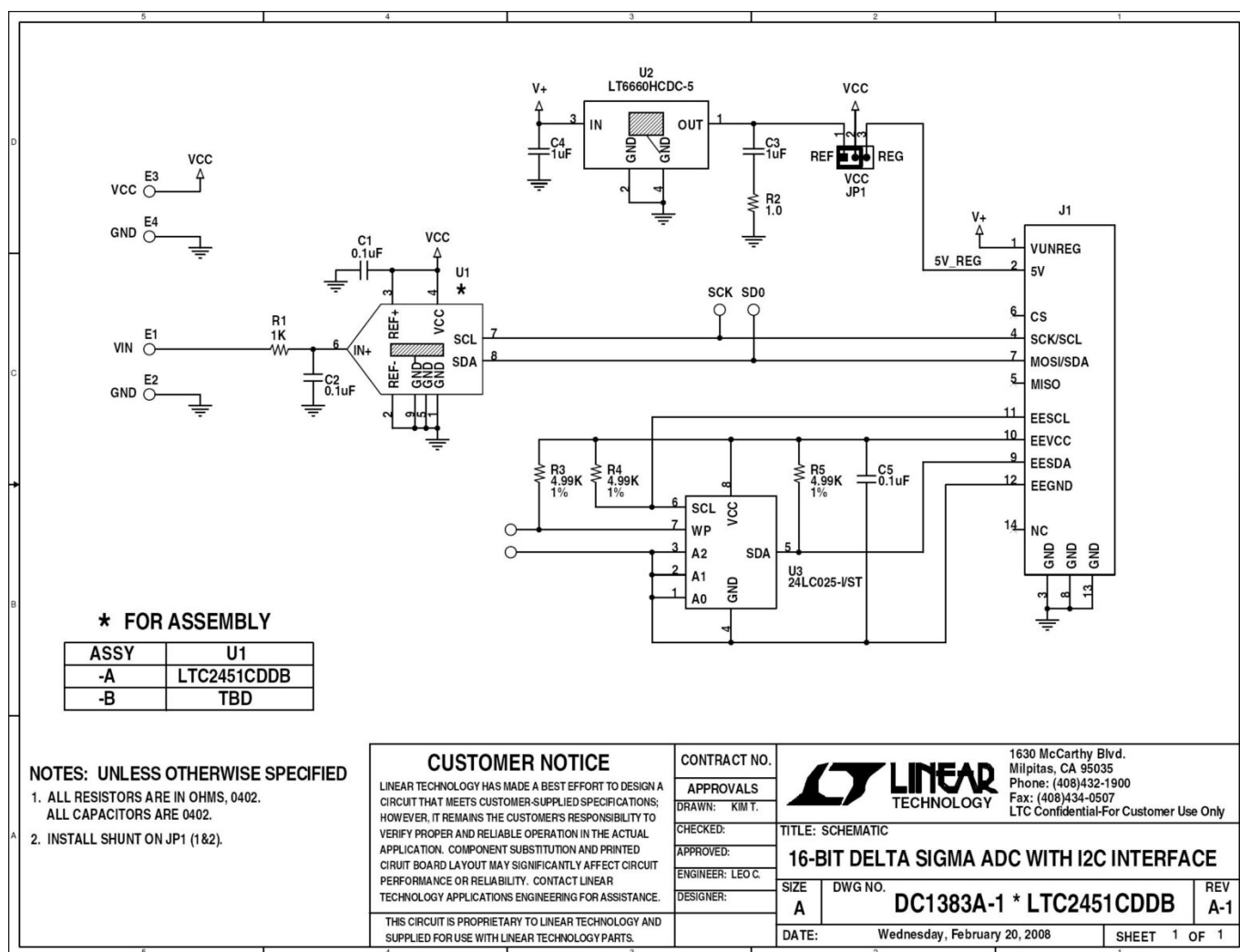
## Documents / Resources



**LINEAR TECHNOLOGY LTC2451 6-Bit Delta Sigma Adc With I2c Interface** [pdf] User Guide
LTC2451 6-Bit Delta Sigma Adc With I2c Interface, LTC2451, 6-Bit Delta Sigma Adc With Interface, With I2c Interface

## References

- ▶ **Design Tools & Calculators | Design Center | Analog Devices**