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## DESCRIPTION

Demonstration circuit 806 features the LTC1867 Octal 16 bit ADC. The LTC1867 can be software programmed for a unipolar 0 to 4.096V or bipolar  $\pm 2.048V$  input range. The 8 channel multiplexer can be programmed for 8 single-ended inputs with respect to ground, 7 single-ended inputs with respect to the COM/CH7 pin, 4 differential inputs, or any combination of these.

The LTC1867's DC performance is outstanding with a  $\pm 2LSB$  INL specification and no missing codes over temperature.

The signal-to-noise ratio (SNR) for the LTC1867 is typically 89dB. Housed in a compact, narrow 16-pin SSOP package, the LTC1863/LTC1867 is ideal for space-sensitive and low-power applications.

**Design files for this circuit board are available. Call the LTC factory.**

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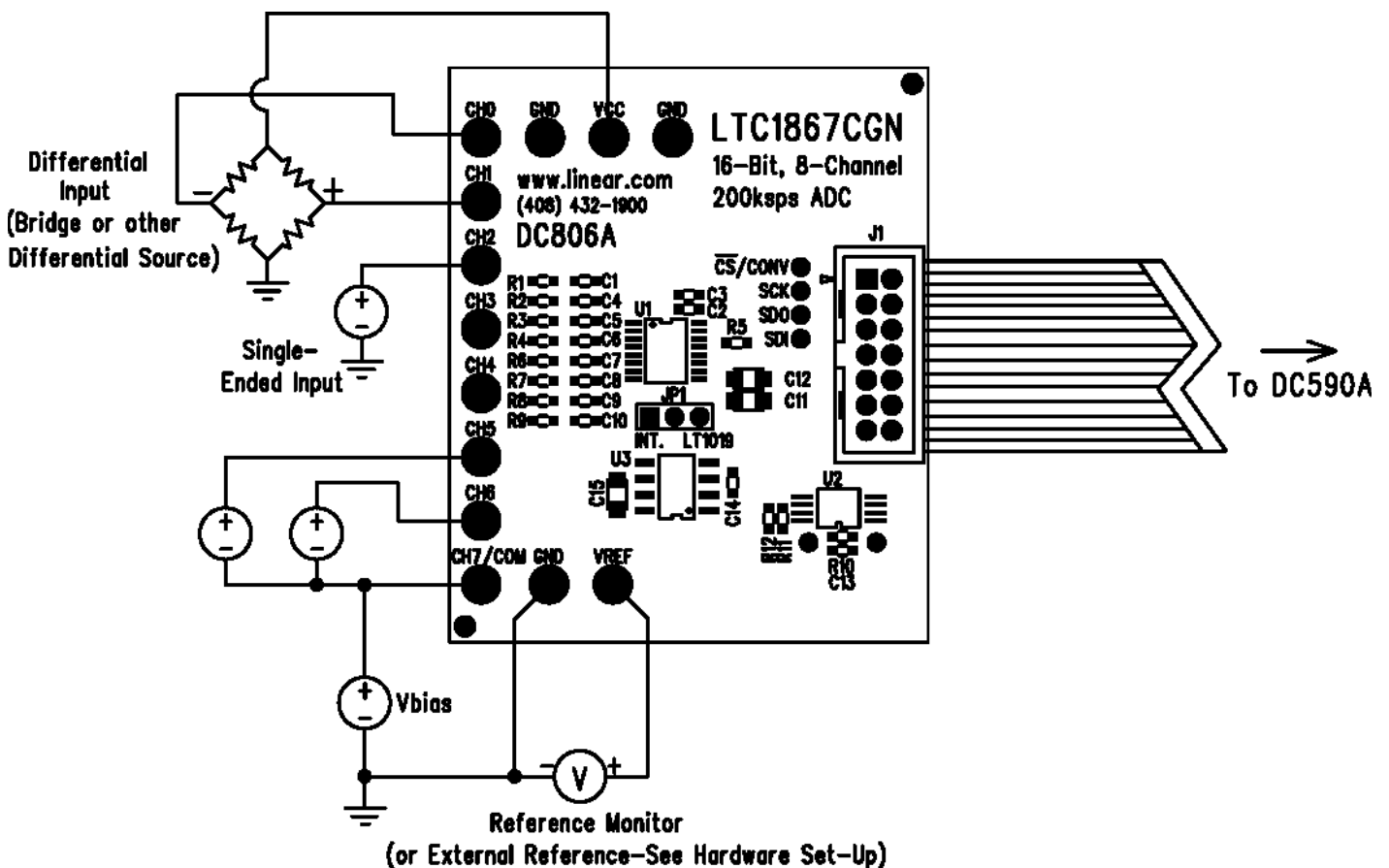


Figure 1. Connection Diagram

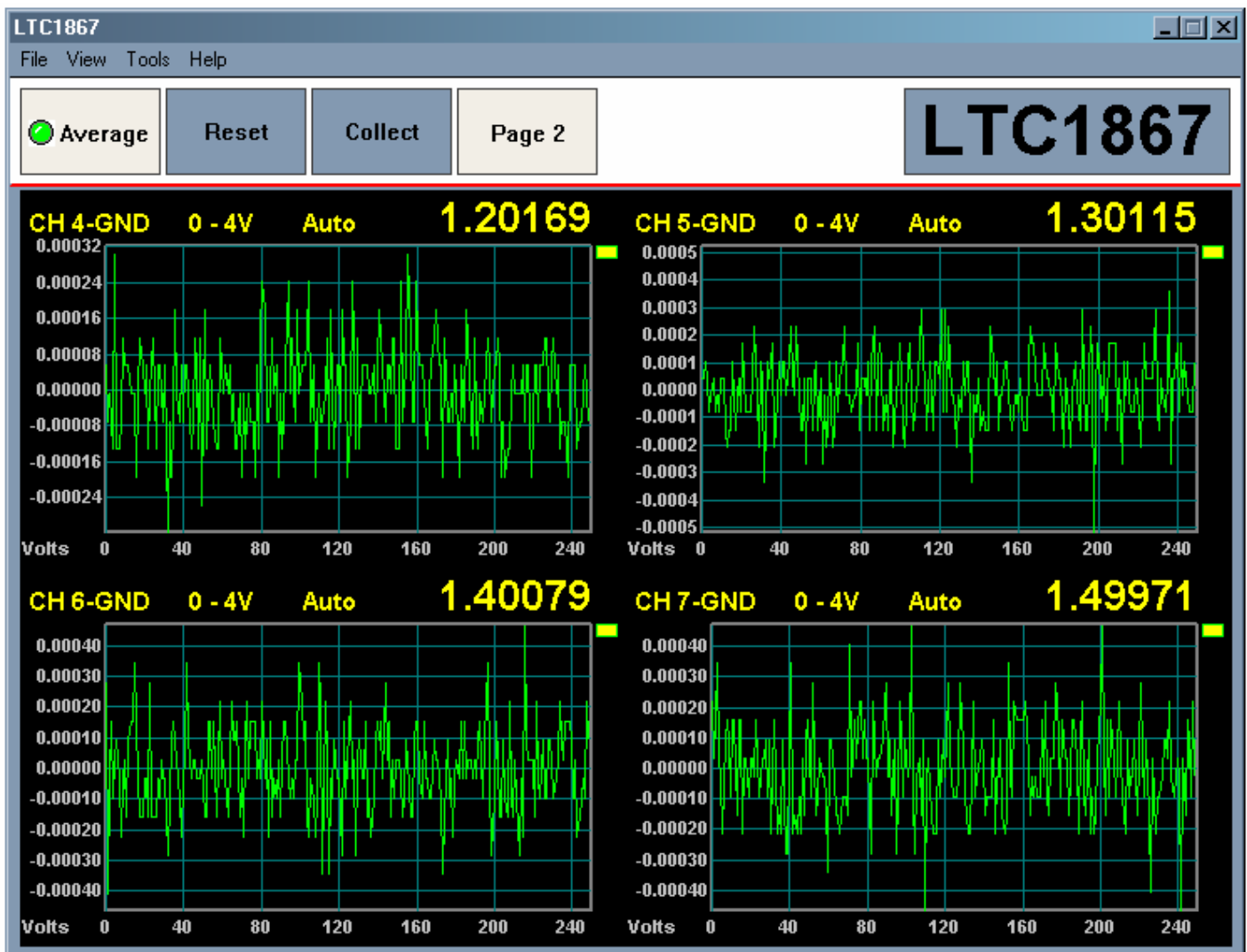
## QUICK START PROCEDURE

Connect DC806 to a DC590 USB serial controller using the supplied 14 conductor ribbon cable. Connect DC590 to a host PC with a standard USB A/B cable. Run the evaluation software supplied with DC590 or download it from [www.linear.com](http://www.linear.com). The correct control panel will be loaded automatically. Click the COLLECT button to begin reading the ADC.

Change the channel and range by right-clicking over the channel or range indicator in the display.

Complete software documentation is available from the Help menu item, as features may be added periodically.

Figure 2. Software Screenshot



## HARDWARE SET-UP

### JUMPERS

**JP1** – Select reference, either internal or the onboard LT1019 reference.

### ANALOG CONNECTIONS (TURRET POSTS)

**GND (3X)** – Ground plane connections. DC806 can also be grounded to an application circuit by the exposed ground planes at the edges of the board.

**CH0 – CH7/COM** – Analog inputs to LTC1859. Each input has a 100 / 1000pF filter to reduce wideband noise pickup.

**VREF** – Reference pin on LTC1859. When JP2 is set to INT, the LTC1867 uses its internal reference, or an ex-

ternal reference can be connected to this pin, overdriving the internal reference. When JP2 is set to LT1019, this turret should only be used for monitoring the reference voltage.

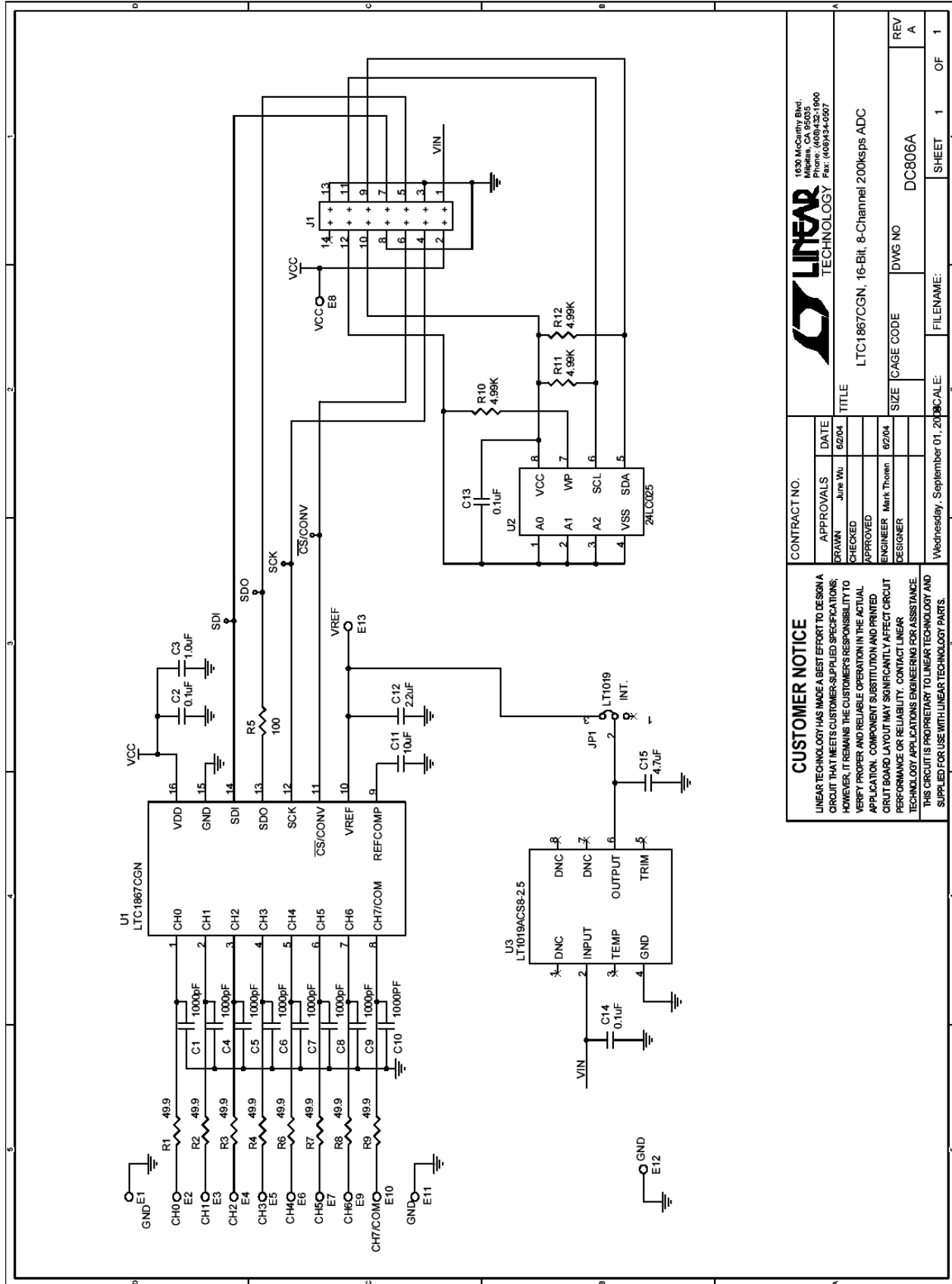
### GROUNDING AND POWER CONNECTIONS

DC806 does not require any external power source when used with the DC590 USB controller board. However, an external 5V power source can be connected to the Vcc and ground turrets if the power supply on DC590 has been disabled. Refer to the DC590 quick start guide for more information.



# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT DC806

## OCTAL 16 BIT 200KSPS ADC



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<b>APPROVALS</b>	<b>DATE</b>	<b>LINEAR TECHNOLOGY</b>	
DRAWN: June Wu	6/2/04	LTC1867CGN, 16-Bit, 8-Channel 200ksp/s ADC	
CHECKED:		TITLE	
APPROVED:		SIZE	
ENGINEER: Mark Thoen	6/2/04	CAGE CODE	DWG NO
DESIGNER:		DC806A	REV
Wednesday, September 01, 2004		FILENAME:	SHEET 1 OF 1

**CUSTOMER NOTICE**

LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE. THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.