

Setting Up the Evaluation Board for the ADCLK948

PACKAGE LIST

Evaluation board with ADCLK948 component installed

Applicable documents (schematic, layout)

GENERAL DESCRIPTION

This user guide describes how to set up and use the evaluation board for the [ADCLK948](#). The ADCLK948 data sheet should be used in conjunction with this user guide.

The data sheet contains full technical details about the specifications and operation of this device.

The ADCLK948 is a very high performance clock fanout buffer. The evaluation board is fabricated using a high quality Rogers dielectric material. Transmission line paths are kept as close to 50 Ω as possible.

DIGITAL PICTURE OF EVALUATION BOARD

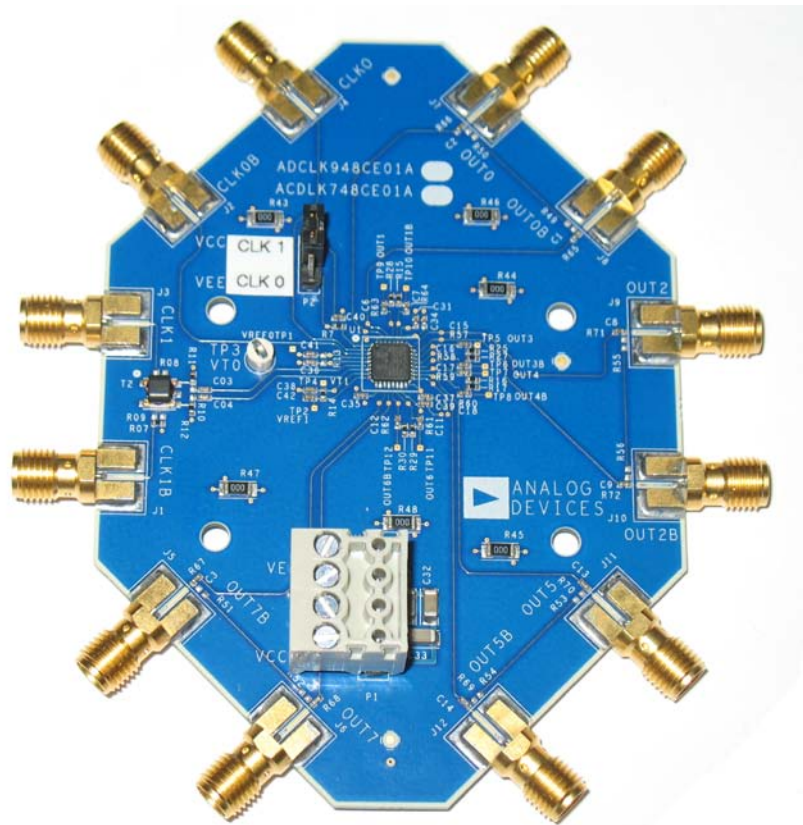


Figure 1. ADCLK948 Evaluation Board

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REVISION HISTORY

11/09—Revision 0: Initial Version

EVALUATION BOARD HARDWARE

RECOMMENDED BOARD SETUP

The recommended setup for the ADCLK948 evaluation board is shown in Figure 2. V_{CC} is set to 3.3 V and V_{EE} is set to GND. The CLKSEL jumper (P2) is provided to select the desired input configuration.

On the evaluation board, Input CLK0 and Input CLK0 are set up for dc-coupled operation to the ADCLK948 via J2 and J4. This input configuration requires the user to provide the appropriate ac swing and common-mode voltage to both inputs. Refer to the ADCLK948 data sheet for input specifications.

CLK1 is set up to evaluate with a single-ended source via the balun on the evaluation board. In addition, series capacitors in the path provide ac-coupled inputs to the ADCLK948. The

common-mode voltage for both inputs is provided by tying V_{REF1} and V_{T1} together. This connection is made with R14 installed at the factory.

The range of the peak-to-peak input voltage swing at CLK1 is 0.2 V p-p to 1.7 V p-p. Note that output jitter performance is degraded by an input slew rate, as shown in the data sheet.

Table 1. Basic Equipment Required

Quantity	Description
1	Single power supply
1	Signal source
1	High bandwidth oscilloscope
1	High bandwidth Differential Probe (Optional)
4	Matched high speed cables

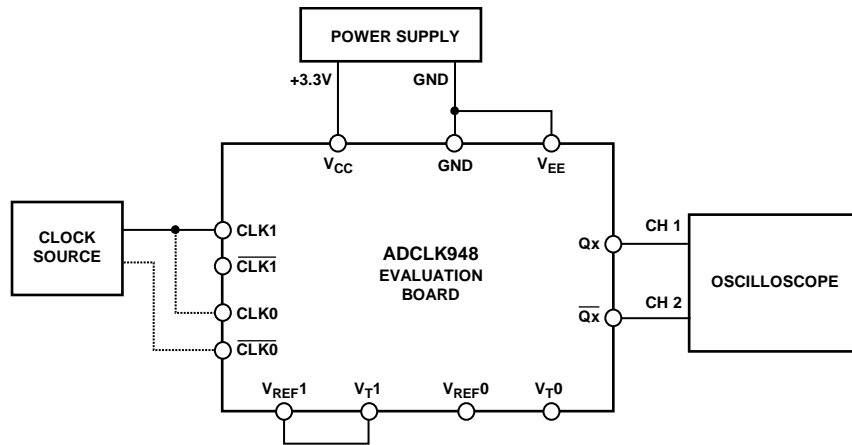


Figure 2. Recommended Setup for Device Evaluation

CLOCK OUTPUTS

The ADCLK948 has eight differential outputs. Four of the differential clock outputs on the evaluation board are biased to GND via 200 Ω and ac-coupled to the SMAs. From the SMAs, use matched 50 Ω coaxial cables into the oscilloscope for evaluation. The other four differential outputs on the evaluation board are not launched. Use a high bandwidth differential probe and oscilloscope close to the ADCLK948 device for evaluation. See the evaluation board schematic in Figure 4 for more details.

Table 2. Power Connections via P1

Label	ADCLK948
GND	Connect to GND
VCC	Connect to 3.3 V
VEE	Connect to GND

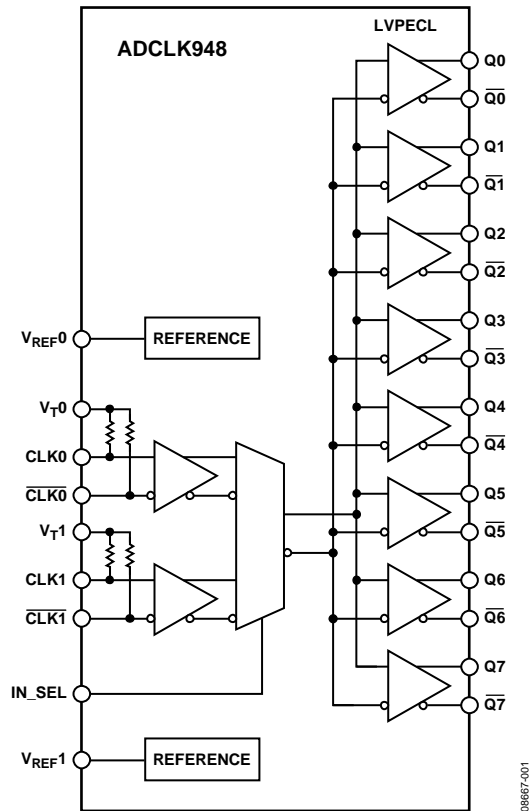


Figure 3. ADCLK948 1:8 Clock/Data Buffer Block Diagram

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EVALUATION BOARD SCHEMATIC AND ARTWORK

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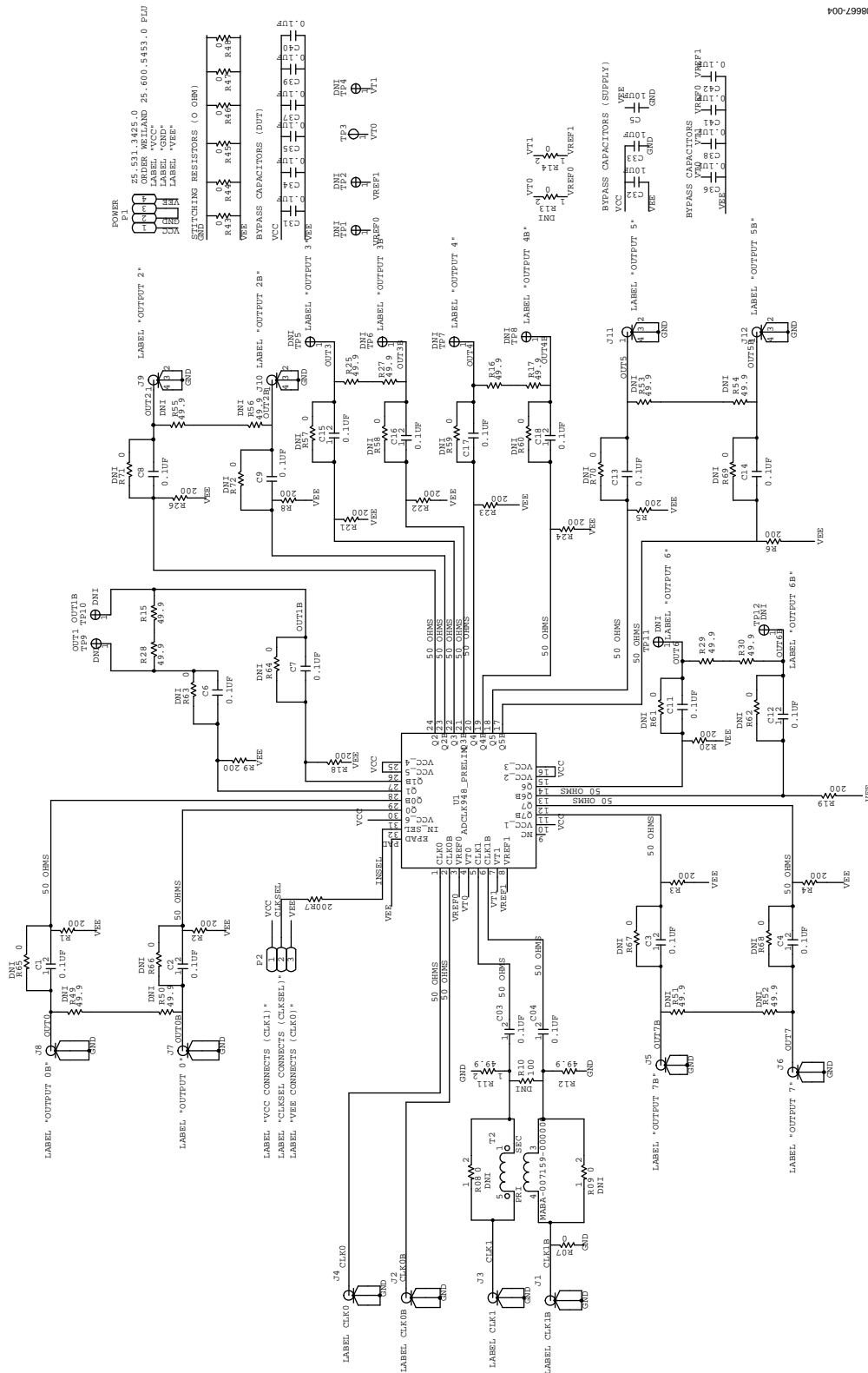
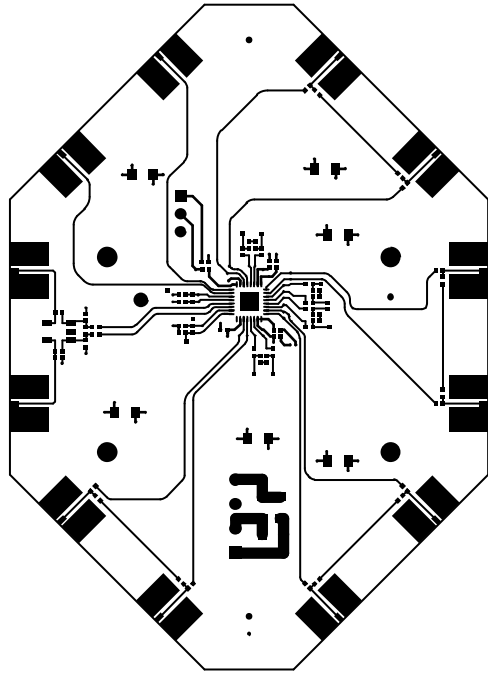
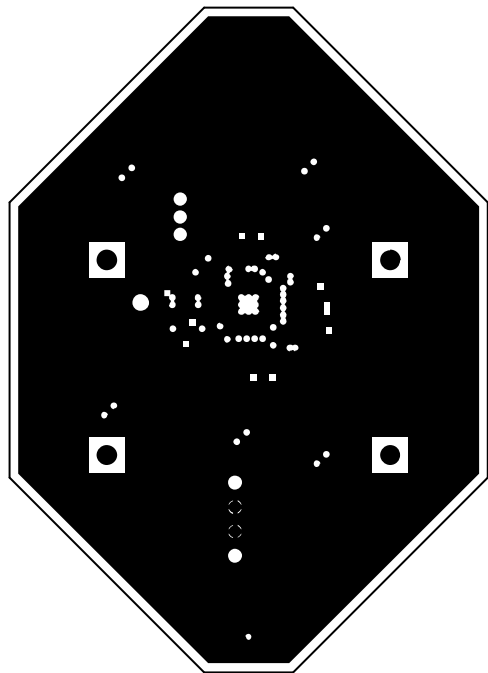


Figure 4. ADCLK948 Evaluation Board Schematic



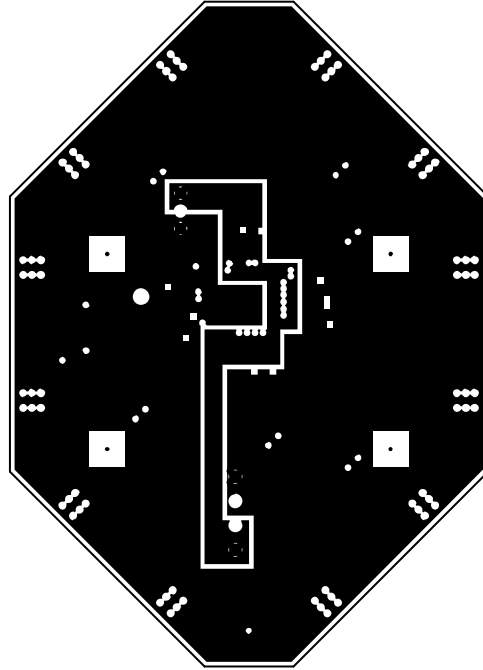
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Figure 5. Top Trace Layer



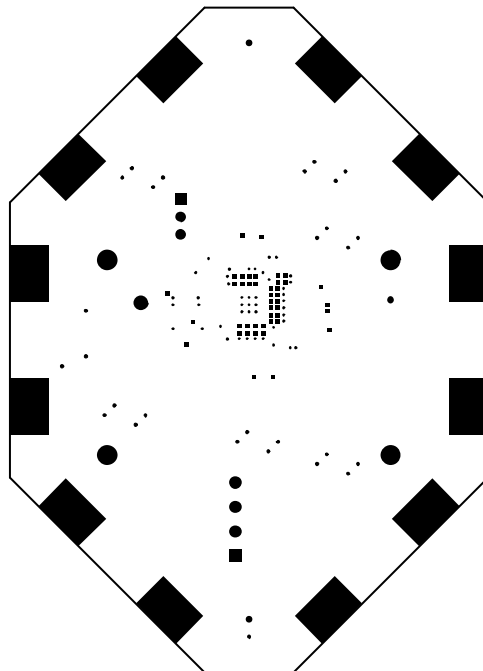
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Figure 6. Ground Plane Layer



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Figure 7. V_{CC} and V_{EE} Power Plane Layer



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Figure 8. Bottom Trace Layer

NOTES

ESD CAUTION**ESD (electrostatic discharge) sensitive device.**

Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

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