Setting Up the Evaluation Board for the ADCLK946

PACKAGE LIST
Evaluation board with ADCLK946 component installed
Applicable documents (schematic, layout)

GENERAL DESCRIPTION
This user guide describes how to set up and use the evaluation board for the ADCLK946. The ADCLK946 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 ADCLK946 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. ADCLK946 Evaluation Board
TABLE OF CONTENTS

Package List ....................................................................................... 1
General Description ............................................................................ 1
Digital Picture of Evaluation Board ................................................. 1
Revision History ................................................................................ 2
Evaluation Board Hardware .............................................................. 3

Recommended Board Setup .............................................................. 3
Clock Outputs ..................................................................................... 4
Evaluation Board Schematic and Artwork ....................................... 5
ESD Caution ...................................................................................... 8

REVISION HISTORY

11/09—Revision 0: Initial Version
EVALUATION BOARD HARDWARE

RECOMMENDED BOARD SETUP

The recommended setup for the ADCLK946 evaluation board is shown in Figure 2. $V_{CC}$ is set to 3.3 V and $V_{EE}$ is set to GND.

On the evaluation board, the clock input is set up for single-ended-to-differential operation via the balun. In addition, series capacitors in the path provide ac-coupled inputs to the ADCLK946. The common-mode voltage for both inputs is provided by tying $V_{REF}$ and $V_T$ together. This connection is made with R13 installed at the factory.

The range of the peak-to-peak input voltage swing at CLK 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 ADCLK946 data sheet.

Table 1. Basic Equipment Required

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Single power supply</td>
</tr>
<tr>
<td>1</td>
<td>Signal source</td>
</tr>
<tr>
<td>1</td>
<td>High bandwidth oscilloscope</td>
</tr>
<tr>
<td>4</td>
<td>Matched high speed cables</td>
</tr>
</tbody>
</table>

![Figure 2. Recommended Setup for Device Evaluation](image-url)
CLOCK OUTPUTS
The ADCLK946 has six differential outputs. All 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. See the evaluation board schematic in Figure 4 for more details.

Table 2. Power Connections via P1

<table>
<thead>
<tr>
<th>Label</th>
<th>ADCLK946</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND</td>
<td>Connect to GND</td>
</tr>
<tr>
<td>VCC</td>
<td>Connect to 3.3 V</td>
</tr>
<tr>
<td>VEE</td>
<td>Connect to GND</td>
</tr>
</tbody>
</table>

Figure 3. ADCLK946 1:6 Clock/Data Buffer Block Diagram
Figure 4. ADCLK946 Evaluation Board Schematic
Figure 5. Top Trace Layer

Figure 6. Ground Plane Layer
Figure 7. Vcc and VEE Power Plane Layer

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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