

# ISL36111 Evaluation Board User Guide

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## Introduction to the ISL36111DRZ-EVALZ Evaluation Kit

The ISL36111 Evaluation Board is a versatile stand-alone printed circuit board developed to evaluate the performance of the Intersil ISL36111 Lane Extender.

The evaluation kit includes:

- ISL36111 evaluation board
- Power cable

The key features of the Evaluation board are:

- ISL36111 IC.
- Connection to external 3.3V power supply.
- On board DC/DC converter that provides the 1.2V supply to the IC.
- On board boost selection through a set of headers.
- SMA connectors to access differential input and output.

## Operation of the ISL36111 Evaluation Board

This section describes how to simply setup your ISL36111 evaluation board making sure proper power is applied, describing connection to high speed RF input and output and finally describing how to easily set the equalizer boost. The board is shown in Figure 1.

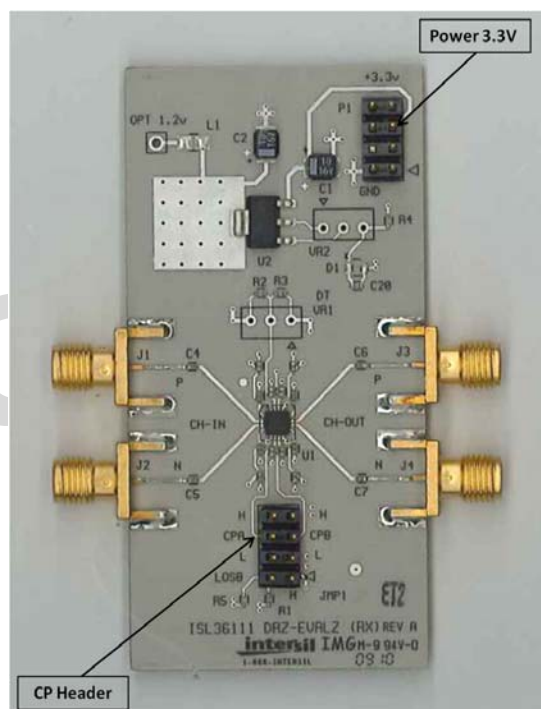


FIGURE 1. ISL36111 EVALUATION BOARD

## Power Supply

The board needs to be powered by an independent external 3.3V power supply via the power header located at the top of the board using the power cable provided. The typical current consumption of the board is 68mA when no signal is applied and 91mA when a signal is applied to the board input

## High Speed Data I/O Interface Connectors

The ISL36111 is intended to be used at the receive end of a lossy channel. Therefore, the input of the ISL36111 should be connected to the end of the channel (board trace or twinax cable). This connection should be made using the input SMA connectors labeled on the board. We recommend using phase (time-delay)-matched cables for each differential input to preserve the fidelity of the differential signal. The output SMA connectors provide access to the output differential signal(s) of the ISL36111 and can be connected with phase-matched cables to the DUT channel to be equalized. Make sure proper torque (5 in-lbs) is applied to the SMA connectors for reliable measurements and to prevent damage to the connectors.

## Boost Setting Control

The ISL36111 offers nine different levels of equalization, or boost. The level is set by positioning jumpers on header JMP1 as illustrated in Figure 2. CPA and CPB can each be set to one of three values (VDD, GND, No Connection). Table 1 describes jumper positions to achieve the various boost levels. As an example, Figure 2 depicts the jumper position to achieve boost 7 (CPA to VDD and CPB to GND).

TABLE 1. JUMPER POSITIONS FOR BOOST SETTINGS

CPA	CPB	BOOST LEVEL
No Jumper	No Jumper	0
No Jumper	Jumper to GND	1
Jumper to GND	Jumper to VDD	2
No Jumper	Jumper to VDD	3
Jumper to VDD	No Jumper	4
Jumper to GND	No Jumper	5
Jumper to GND	Jumper to GND	6
Jumper to VDD	Jumper to GND	7
Jumper to VDD	Jumper to VDD	8

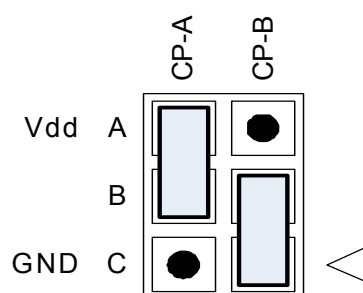


FIGURE 2. JUMPER CONFIGURATION TO ACHIEVE BOOST 7

## LOSB indicator

The ISL36111 provides an inverted Loss-Of-Signal (LOSB) output. The LOSB output is located on header JMP1 as labeled on the board. When the high-speed input signal to ISL36111 is turned off or disabled, the output driver is disabled (muted). The differential output signal does not exceed 20mV<sub>p-p</sub> during this condition, and the voltage on the LOSB indicator pin is pulled low (<250mV). During normal operation, when a high-speed signal is input to the ISL36111, the output driver on the IC is enabled, and the voltage on the LOSB indicator pin is pulled high (>1V).

## Baseline Performance

Figure 3 shows the performance improvement provided by the ISL36111 evaluation board at 10.3125Gbps. After transmission through a 10m 28AWG cable, the eye diagram is closed (Figure 3A) and the information totally lost. The ISL36111 is able to compensate for the frequency-dependent attenuation of the cable and recover the signal (Figure 3B).

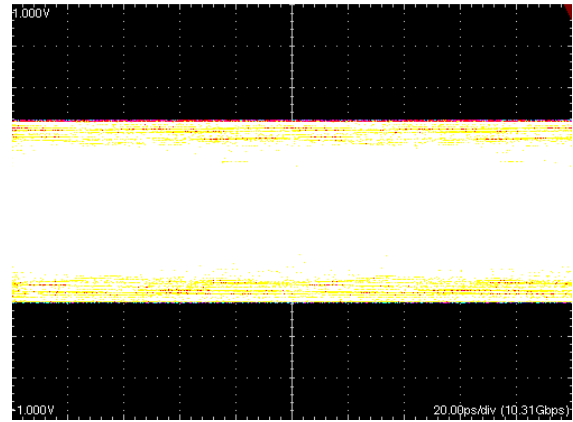


FIGURE 3A.

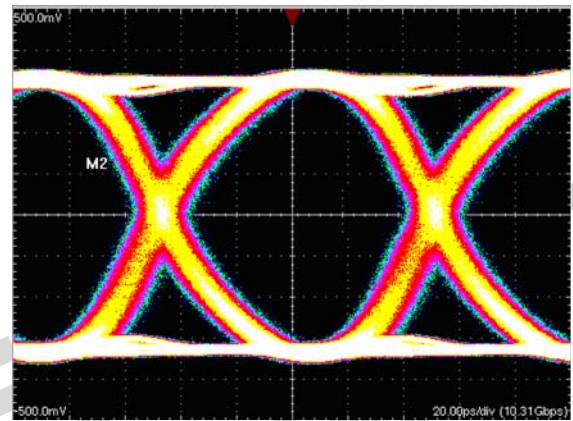


FIGURE 3B.

FIGURE 3. ISL36111 PERFORMANCE WITH A 10M 28AWG CABLE, EYE DIAGRAMS AT THE INPUT (A) AND OUTPUT (B) OF THE ISL36111

## Schematic

The ISL36111 evaluation board schematic is shown in Figure 4.

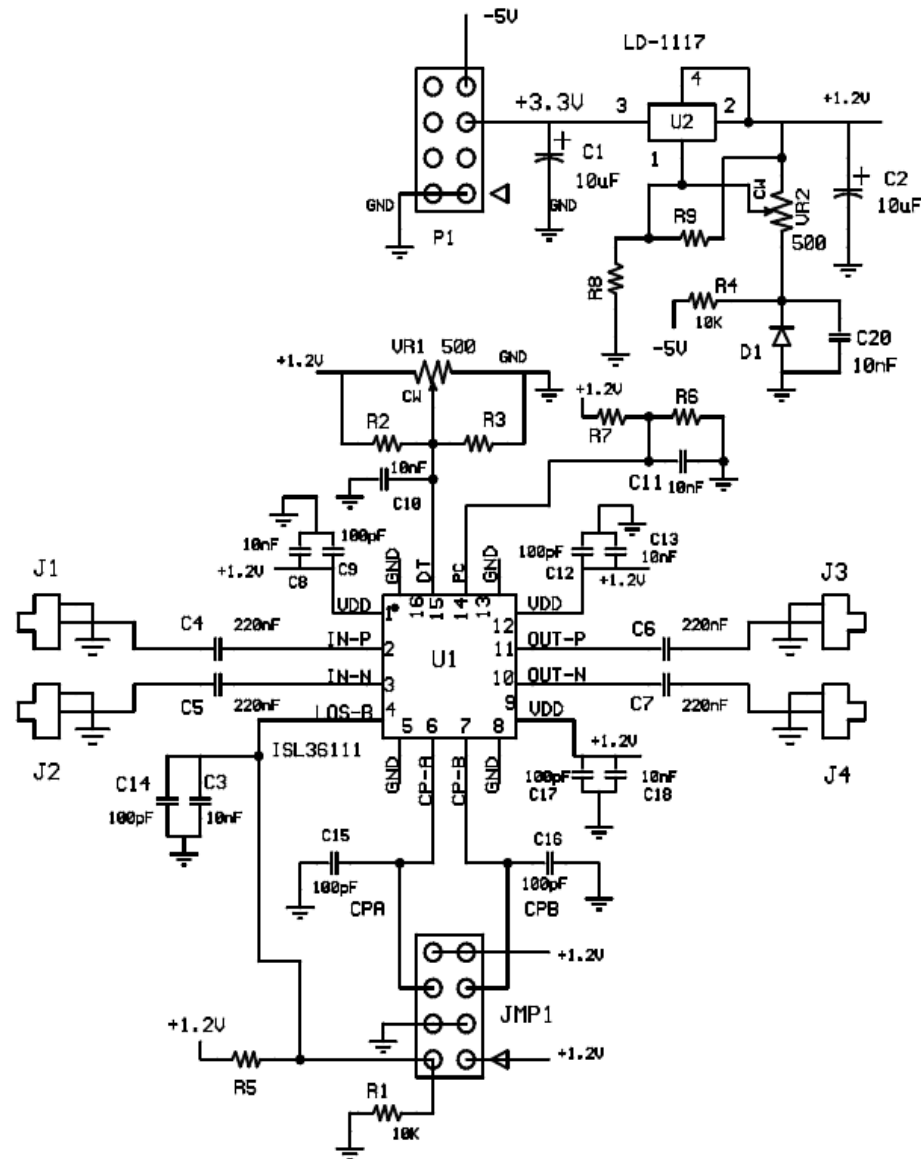


FIGURE 4. ISL36111 EVALUATION BOARD SCHEMATIC

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\*For a complete listing of Applications, Related Documentation and Related Parts, please see the respective device information page on intersil.com: [ISL36111](#)

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