

## DS50EV401-EVK User Guide

### 2.5 Gbps / 5.0 Gbps / 8.0 Gbps Quad PCI Express Cable and PC Board Equalizer

#### Overview

The DS50EV401-EVK evaluation board provides a typical PCIe application for the evaluation of the DS50EV401 2.5 Gbps, 5 Gbps, 8 Gbps x4 Lane Serial PCI Express Equalizer.

#### Specifications

**DC Input Power (JP1):** 3.3V  $\pm$  10%, or 2.5V  $\pm$  5%

**Serial Data Inputs (IN\_[0:3] +/-):** High-speed CML inputs. Acceptable data input speed DC – 8 Gbps. *For more details, please refer to the datasheet.*

**Serial Data Outputs (OUT\_[0:3] +/-):** High-speed CML outputs. Each output is matched with its respective input channel. For instance, IN\_0+ input routes to OUT\_0+. *For more details, please refer to the datasheet.*

**CML Input Voltage:** -0.5V to 4.0V

**CMOS Input Voltage:** -0.5V to 4.0V

#### Jumper Settings

**JP5, JP6, JP7, JP8, JP9, JP10, JP11, JP12 (SD[0:3] / EN[0:3]):** Leave these jumpers unconnected.

**JP3 (BST1/MODE):** The jumper controls equalization frequency levels. Please see Table 1.

**Table 1. Equalization Boost Controls**

6 mil microstrip FR4 trace length (in)	24 AWG Twin-AX cable length (m)	Frequency	Channel Loss	MODE
30	7	8 Gbps	16 dB	0 (Default)
40	10	2.5 Gbps 5 Gbps	14 dB 20 dB	1

**JP2, JP4 (BST0, BST2): DO NOT USE THESE JUMPERS**

**JP13, JP14, JP15, JP16 (CS, SDC, SDA, FEB): DO NOT USE THESE JUMPERS**

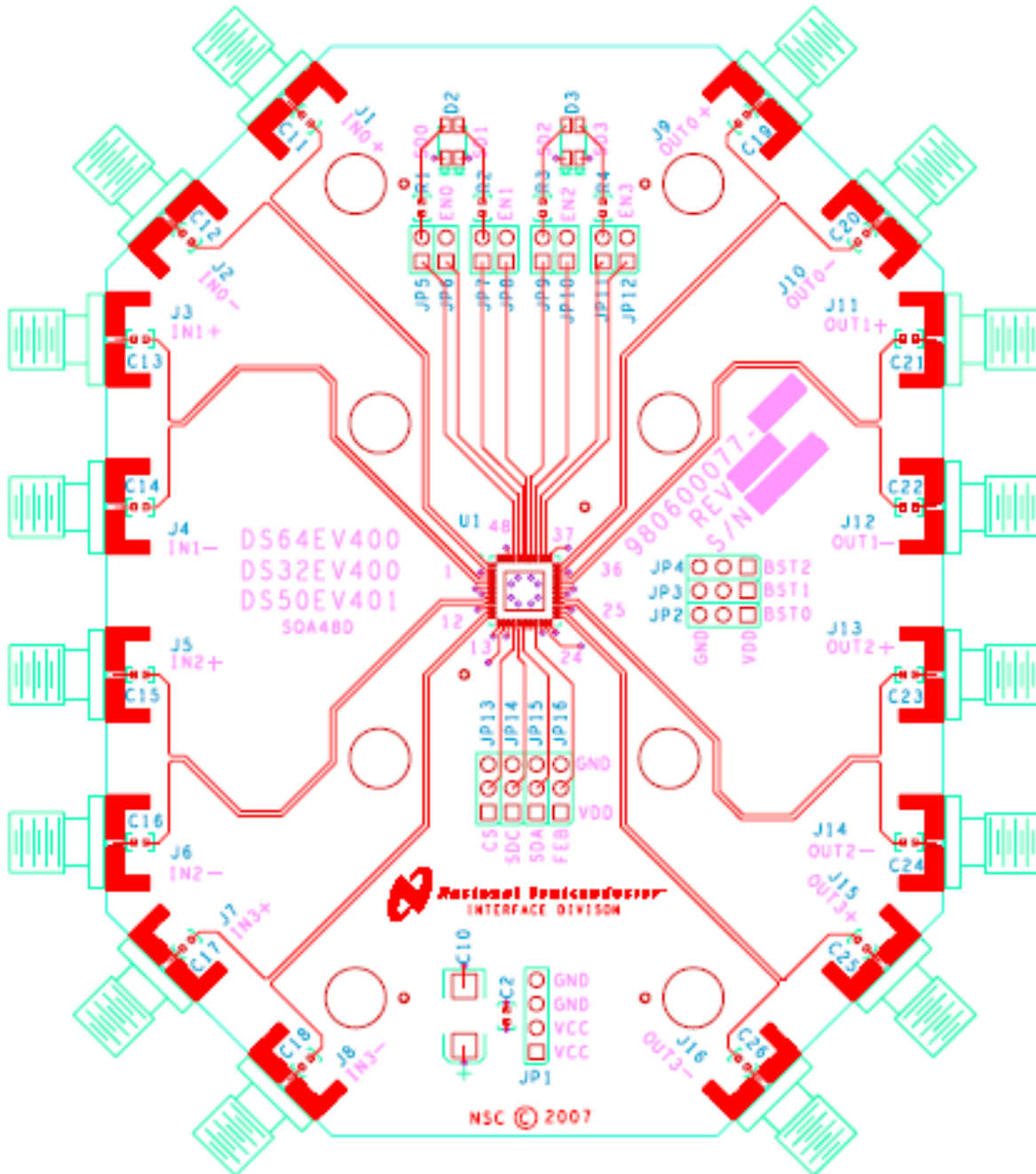
**D1, D2:** D1/D2 is a LIST-C155KGJRKT LED lamp. The LED serves as the detecting signaling, when shorting pin 1 and 2 of JP5, JP6, JP7, JP8, JP9, JP10, JP11, and JP12. When LED is green/red, the SD is detecting an input signal, and the data channel is at an active mode.

## Bill of Materials

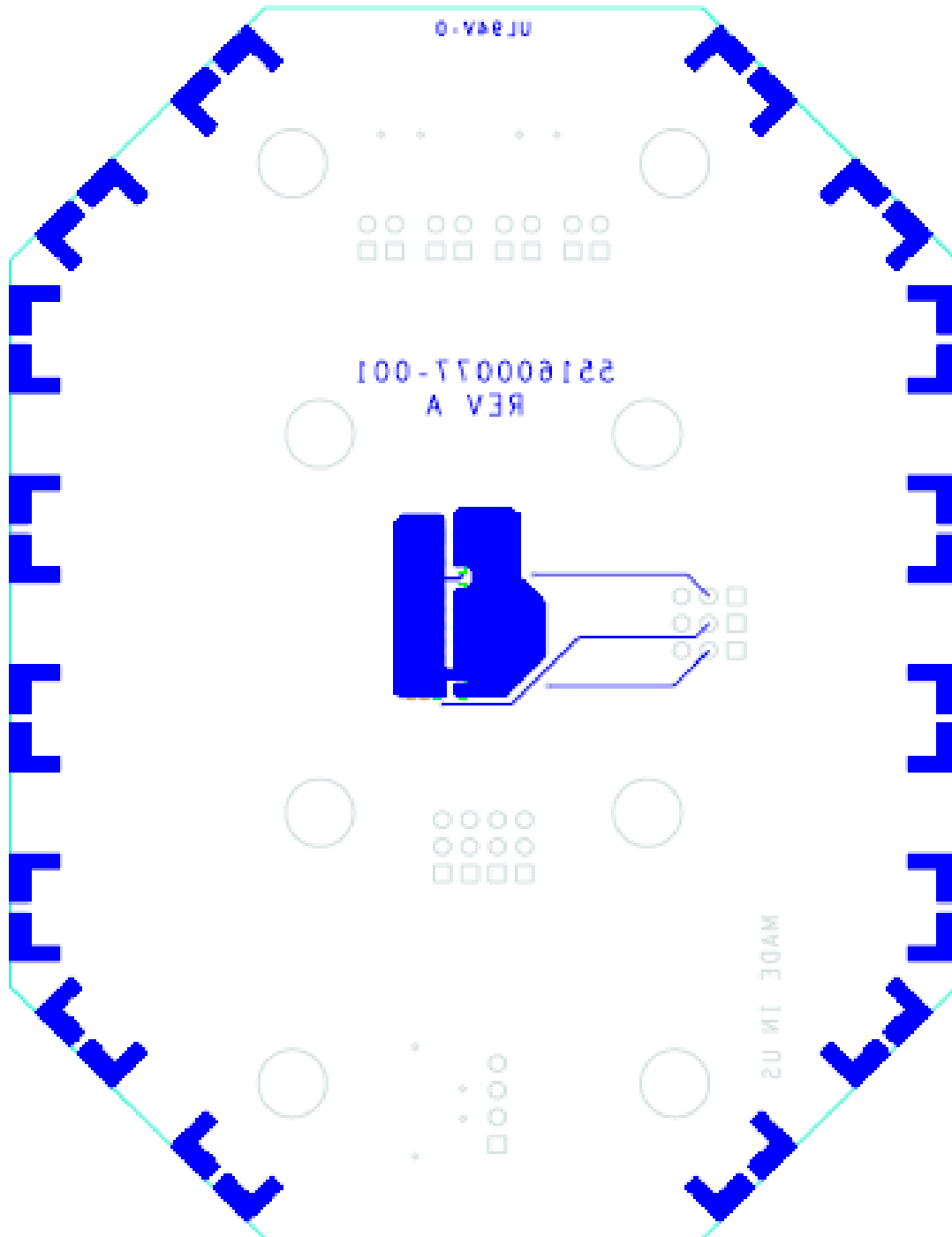
DESIGNATION	QTY	DESCRIPTION
C1, C3, C5, C7	4	0.01uF $\pm$ 10% Ceramic Capacitor 0402
C2, C4, C6, C8, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26	20	0.1uF $\pm$ 10% Ceramic Capacitor 0402
C9	1	4.7uF $\pm$ 10% Ceramic Capacitor 0805
C10	1	22uF +10% Tan Capacitor 7343
D1, D2	2	LIST-C155KGJRKT LED lamp
JP1	1	1 x 4 Pin Header
JP2, JP3, JP4, JP13, JP14, JP15, JP16	7	1 x 3 Pin Header
JP5, JP6, JP7, JP8, JP9, JP10, JP11, JP12	8	1 x 2 Pin Header
JP2, JP4, JP5, JP6, JP12	5	3 Pin Header
JP3	1	3X2 Pin Header
JP7	1	4X2 Pin header
J1, J2, J3, J4, J5, J6, J7, J8, J9, J10, J11, J12, J13, J14, J15, J16,	16	SMA Edge Tab Receptacle 142-0701-851
R1, R2, R3, R4	4	220 ohm Resistors
U1	1	National DS50EV401



**Top View Layout**



## Bottom View Layout



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