Introduction

The ISL97632 is a white LED driver with digital dimming. The demo kit schematic is shown in Figure 1. It is made up of an ISL97632 evaluation board connected with a USB adapter board that can be programmed by a PC running Windows XP (Note 1).

Jumpers JP1 to JP5 can be optionally used to disable five of the seven LEDs. The ISL97632 is guaranteed to drive six LEDs (3.5V/30mA type). It is possible to drive seven LEDs at 20mA if the total VF is lower than the OVP threshold and the input voltage is at nominal rather than low level.

Jumper S1 is used to enable ISL97632 that must be connected with the center and right most pins.

Jumper S2 is used to connect the single wire digital input that must be connected with the center and the left most pins.

Jumper S3 is not used but must be connected with the center and bottom pins.

Jumper S4 is used to select either a 4.75Ω resistor R_1 or a 100Ω potentiometer, R_2. If R_1 is used, connect S4 with the center and the left most pins. This resistance sets the LED supply current.

$$\text{ILED} = (9.8 + 5.68 * S)/R \qquad\qquad \text{(EQ. 1)}$$

where S is the programming step from 0 to 31.

Steps for Setting up the Demo Board:

1. Unzip the ISL97632-v091.zip file (download from http://www.intersil.com/ISL97632 or contact Intersil's Technical Support Center at (321) 724-7143.

2. Run setup.exe.

3. Select the numbers of LEDs used with proper jumpers.

4. Connect the USB to the PC.

5. Apply a DC voltage of 2.7V to 5.5V to V_{IN}. The input voltage must be lower than the expected output voltage for the boost function. If only one or two LEDs are used and the input is higher than the output, the LED may light but it is not a valid operation for ISL97632.

6. Use R_1 or R_2 with proper jumpers to set the desirable LED peak current.

7. Open the ISL97632 program and adjust the LED current.

Sometimes Steps 4 through 7 may need to be repeated if the PC does not recognize the USB device when it is inserted.

NOTE:

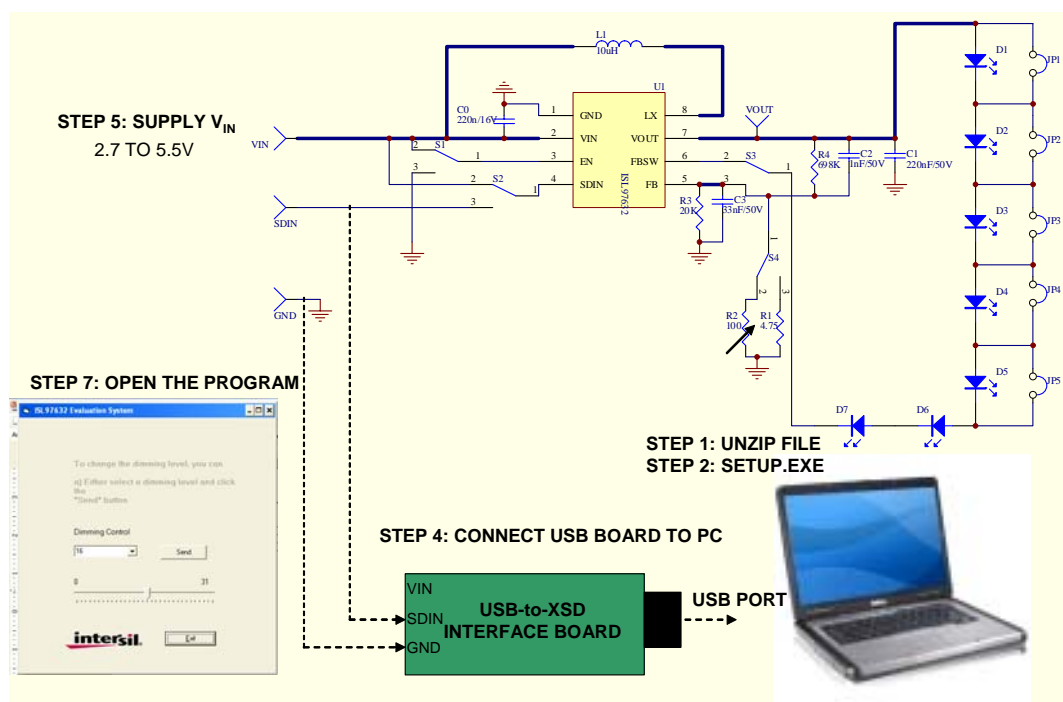1. Intersil cannot guarantee the software compatibility on all PCs running Windows XP.
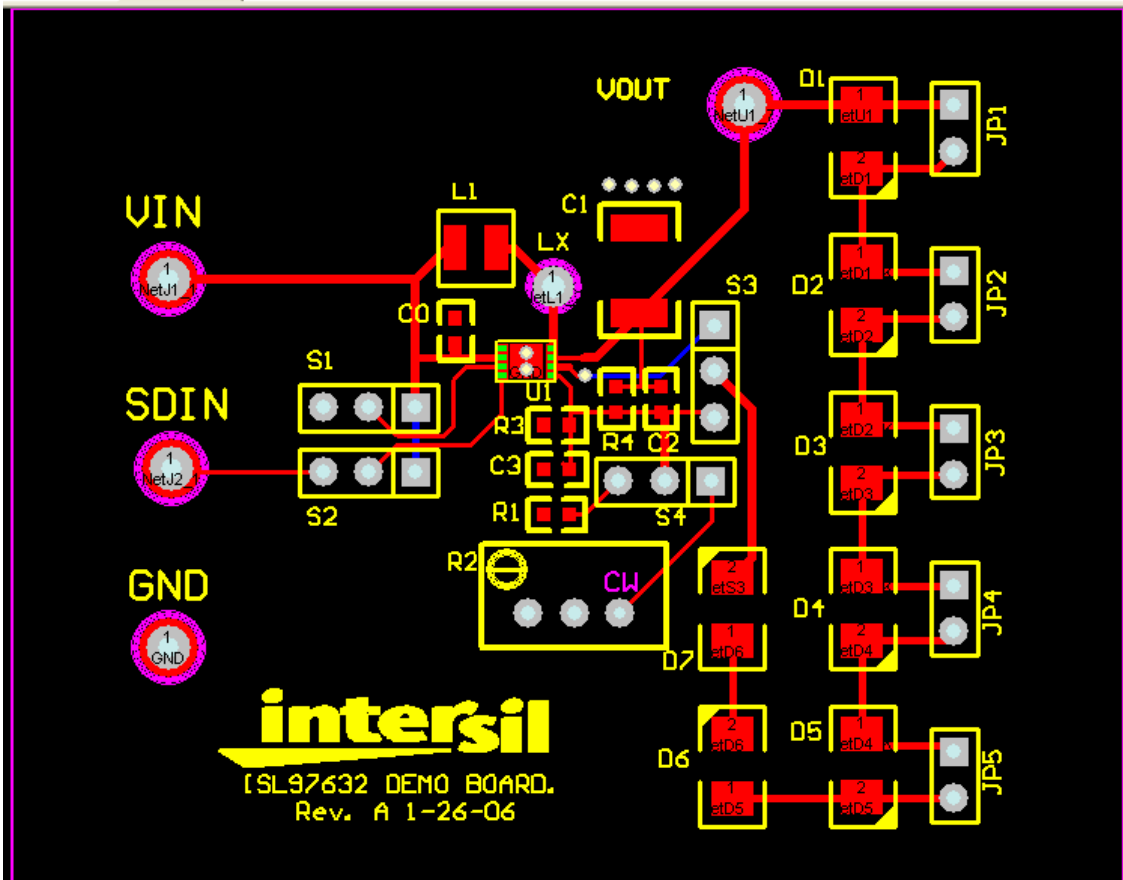

FIGURE 1. SCHEMATIC OF ISL97632 DEMO BOARD

FIGURE 2. ISL97632 DEMO BOARD. RED TRACES ARE ON TOP LAYER AND BLUE TRACES ARE ON BOTTOM LAYER, RESPECTIVELY

TABLE 1. ISL97632 DEMO BOARD BOM

ITEM	QTY	REF	DESCRIPTION	VENDOR	PART NO.	PACKAGE
1	1	C2	1nF/50V			0603
2	1	R1	4.75			0603
3	1	L1	22µH	Coilcraft	1008PS-223KL	3.81mmx3.81mm
			10µH	Coilcraft	1008PS-103KL	3.81mmx3.81mm
4	1	R3	20k			0603
5	1	C3	33nF/50V			0603
6	1	R2	100			0603
7	1	C0	220n/16V			0603
8	1	C1	4.7µF/50V	Murata	GRM32ER71H475KA88	1210
9	1	R4	698k			0603
10	1	J3	GND			POWERPOST
11	1	U1	LED Driver	Intersil	ISL97632	TDFN2X3
12	1	JP3	JUMPER			JUMPER-2PIN
13	1	JP4	JUMPER			JUMPER-2PIN
14	1	JP5	JUMPER			JUMPER-2PIN
15	1	JP2	JUMPER			JUMPER-2PIN
16	1	JP1	JUMPER			JUMPER-2PIN
17	1	J2	SDIN			POWERPOST
18	1	J1	VIN			POWERPOST
19	1	J4	VOUT			POWERPOST
20	7	D1 to D7	LED	OSRAM	LW Y3SG	0.6mm MircoSIDLED
1	1	C2	1nF/50V			0603
2	1	R1	4.75			0603
3	1	L1	22µH	Coilcraft	1008PS-223KL	3.81mmx3.81mm

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