ISL97635 SMBus LED Driver Programming Instruction

AN1476
Rev 0.00
Nov 5, 2009

1. Copy the ISL97635-20080614.zip file into hard drive, then unzip it. Once the file is unzipped, run setup.exe under the Package directory for s/w installation.
2. Connect the USB connector to the PC, or use a USB extension cable (not included).
3. Refer to “ISL97635EVALZ Evaluation Board Schematic” on page 3.
4. Ensure JP1, JP2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP23, and JP26 are ON.
5. If the eval board does not have enough LED strings, users can connect external LED strings between VOUT (Anode) and IINx (Cathode) pins for the specific configurations.
6. Apply 0.6V to 21V at VIN and PGND.
7. Apply 0.2V to 5.5V at PWMI/EN and GND. Optional PWM signal can be applied to the same pin for PWM dimming.
8. Open the program at Start -> All Programs -> Intersil ISL97635 Eval Kit -> Intersil IS635 Eval Kit. Click ***ISL97636*** instead (This is a programming error that will be corrected in the next revision), the GUI is shown in Figure 1.
9. To program ISL97635 GUI, enter the data in Hex (0x00 to 0xFF) in registers 0x00 and 0x07. Other registers enter binary data. One example for checking the Backlight Control is to change bit 0 in register 0x01 to 1, then click the Write button. The LEDs should be on. Table 1 shows the Register map. For the complete command and data descriptions, see ISL97635 Table 2A and the associated sections.

(Note: Sometimes the USB driver needs to be reset; for normal operation, just cycle the V_{IN} power).

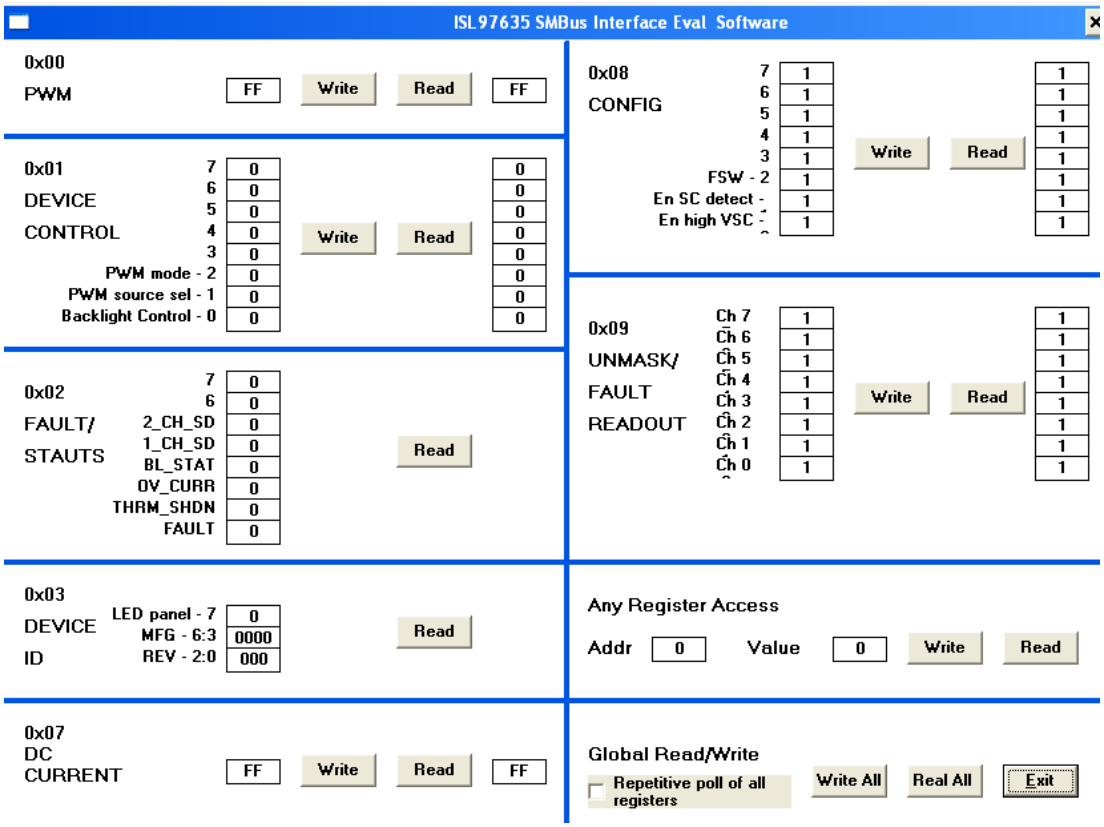


FIGURE 1. ISL97635 GUI

TABLE 1. REGISTER MAP

ADDRESS	REGISTER	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0	DEFAULT VALUE	SMBUS PROTOCOL
0x00	PWM Brightness Control	BRT7	BRT6	BRT5	BRT4	BRT3	BRT2	BRT1	BRT0	0XFF	Read and Write
0x01	Device Control	Reserved	Reserved	Reserved	Reserved	Reserved	PWM_MD	PWM_SEL	BL_cTL	0X00	Read and Write
0x02	Fault/Status	Reserved	Reserved	2_CH_SD	1_CH_SD	BL_STAT	OV_CURR	THRM_SHDN	FAULT	0x00	Read Only
0x03	Identification	LED Panel	MFG3	MFG2	MFG1	MFG0	REV2	REV1	REV0	0xC8	Read Only
0x07	DC Brightness Control	BRTDC7	BRTDC6	BRTDC5	BRTDC4	BRTDC3	BRTDC2	BRTDC1	BRTDC0	0xFF	Read and Write
0x08	Configuration	Reserved	Reserved	Reserved	Reserved	Reserved	FSW	VSC1	VSC0	0xXF	Read and Write
0x09	Output Channel	CH 7	CH6	CH5	CH4	CH3	CH2	CH1	CH0	0xFF	Read and Write

ISL97635EVALZ Evaluation Board Schematic

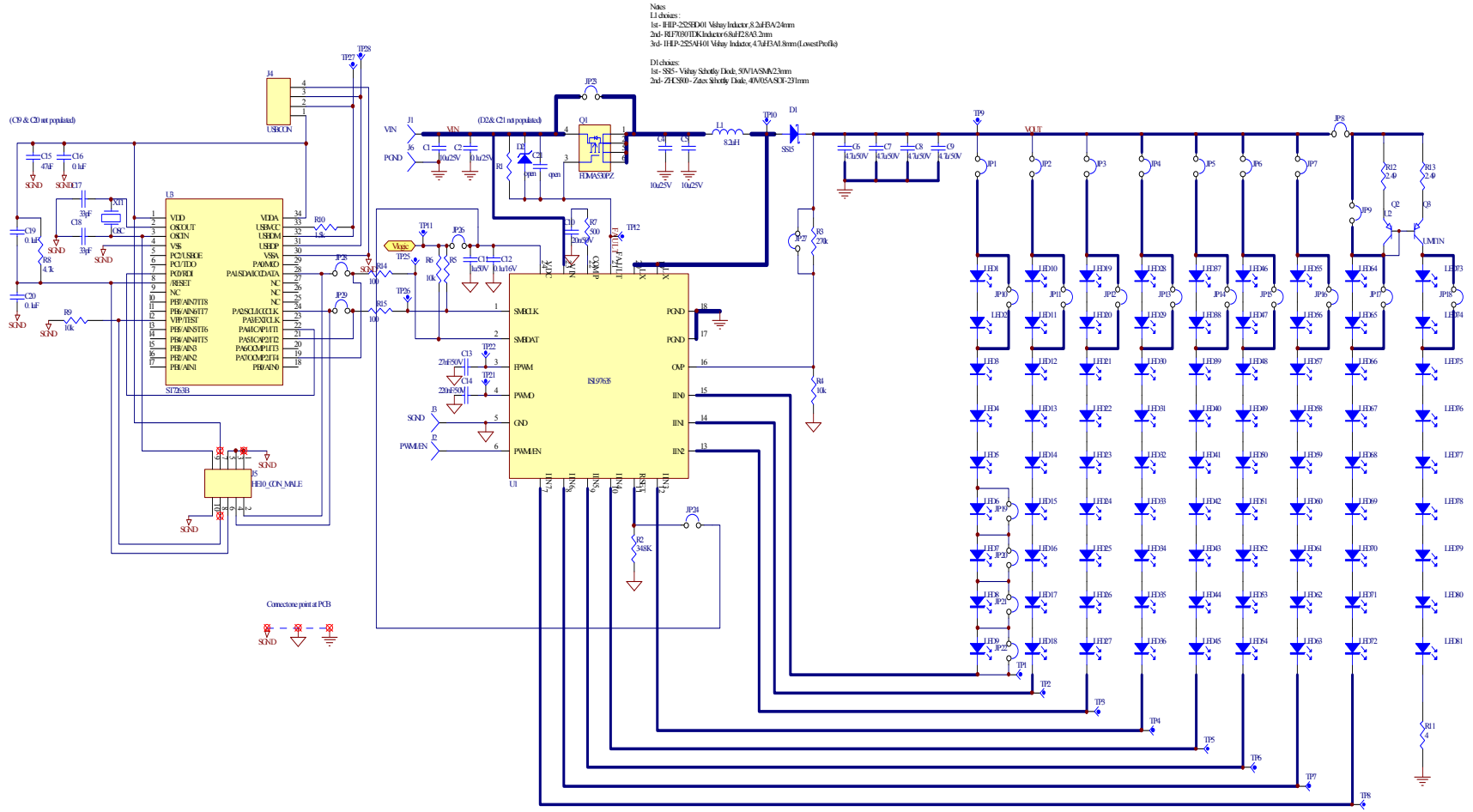
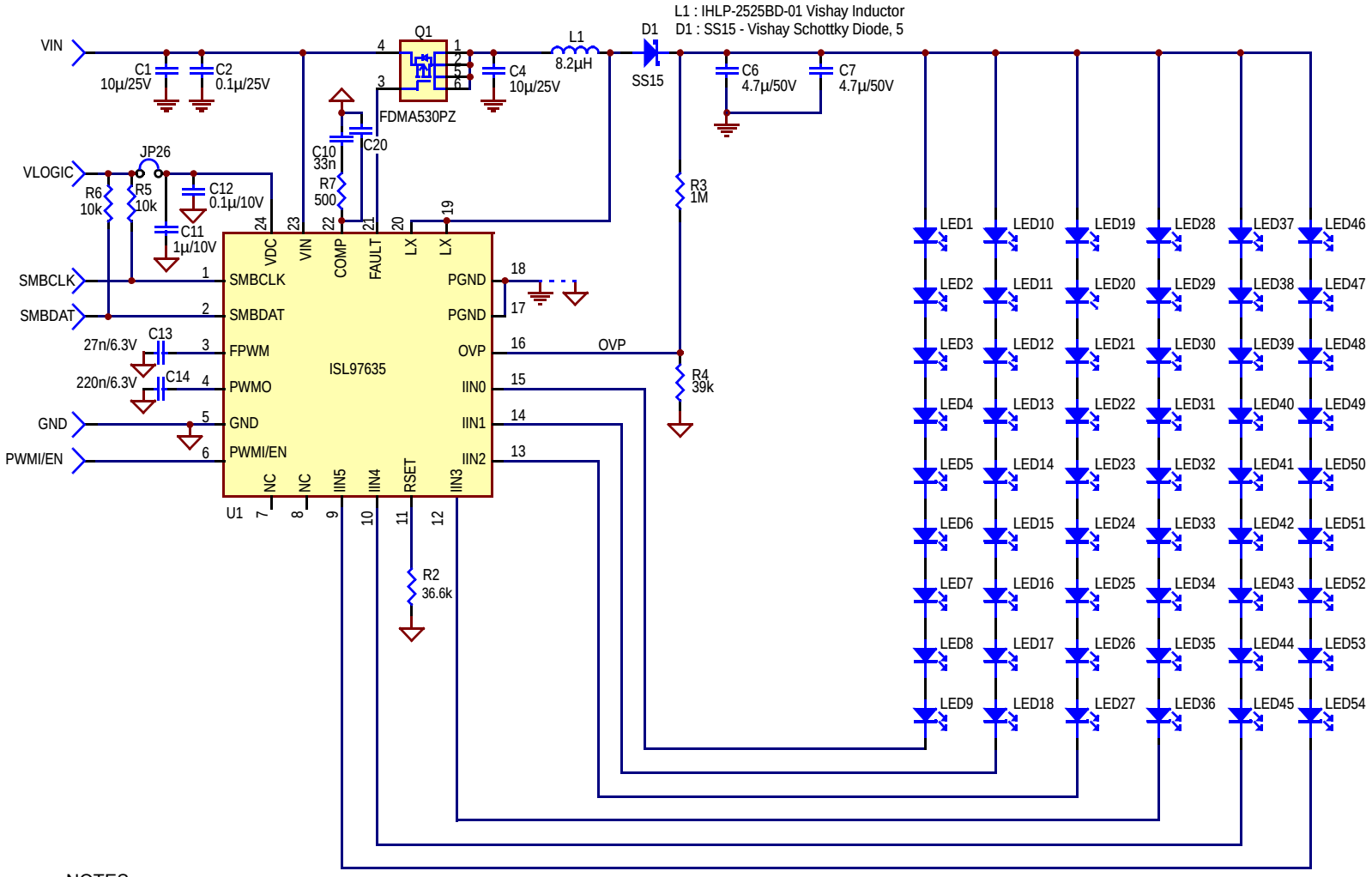


FIGURE 2. EVALUATION BOARD SCHEMATIC

LED Driver Circuit



NOTES:

1. For two layer board, layout PGND (Noisy Ground) Top Layer and AGND (Quiet Ground) on Bottom Layer.
2. Tie PGND and AGND at one point only by doing the following: Bridge U1 PGND (Pins 18 and 19) and AGND (Pin 5) to the package thermal pad.
3. Put multiple vias on the thermal pad that connects to the bottom side AGND.

FIGURE 3. LED DRIVER CIRCUIT

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