

LP3943 Overview

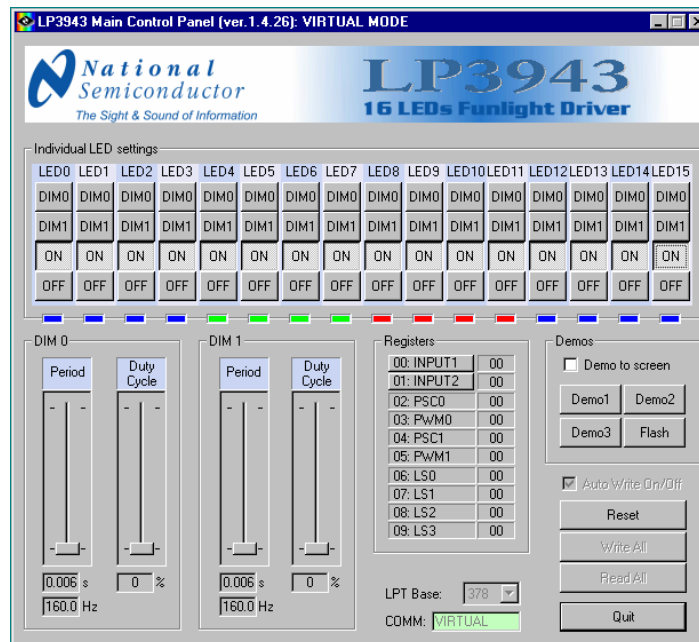
The LP3943 is an integrated device capable of independently driving 16 LEDs. It takes incoming I²C data and feeds them into several registers that control the frequency and the duty cycle of the LEDs. Two prescaler registers and two PWM registers program an internal precision oscillator to provide two individual rates to dim or blink the LEDs.

Getting started

The LP3943 software is designed to program the LP3943 evaluation board. In addition, the “virtual LED” mode is created to make evaluating the LP3943 possible without an evaluation board. In the virtual LED mode, the user is able to program each LED on or off. Or by adjusting the DIM0 and DIM1 sliding bars, the user can dim or blink each LED. Demo1 and Demo2 are musical demonstrations with “dancing LEDs” while Demo3 is a non-music demonstration with LEDs dimming and brightening. Please be aware that the virtual LEDs simulate the functionality of the LP3943, but they do not perform exactly to the specification.

Launching the software without the evaluation board:

1. Start the software by double-clicking on its icon. A message will appear stating that the LP3943 board is not detected, and will ask if the user wants to switch to virtual LED mode. Click “Yes.”
2. The default conditions of the virtual LEDs are different than that of the actual LP3943. For example, in the virtual LED mode, duty cycles are set to 0%. In the real chip, the default is 50%.



LP3943 software in virtual LED mode with all LEDs turned on (this is not the default state).

The Control Panel

Individual LED settings – allows the user to program LED0 to LED15 by turning it on or off, or dimming/blinking at a specified rate. DIM0 corresponds to the values programmed in PWM0 and PSC0 registers. DIM1 corresponds to the values programmed in PWM1 and PSC1 registers. The default state is off for all LEDs.

DIM0 – The sliding bars control the PSC0 and PWM0 registers. The PSC0 register is used to program the period of DIM0 (6.25msec to 1.6sec). The PWM0 register is used to program the duty cycle of DIM0 (0% to 100%).

DIM1 – The sliding bars control the PSC1 and PWM1 registers. The PSC1 register is used to program the period of DIM1 (6.25msec to 1.6sec). The PWM1 register is used to program the duty cycle of DIM1 (0% to 100%).

Registers – This display shows the current status of the ten registers (in hex) in the LP3943. Registers 00 and 01 are read-only registers that can be updated by clicking on the buttons. The other registers can be updated by clicking on “Read All.”

COMM – Message indicating proper/improper I²C communication with an actual evaluation board. “Virtual” is displayed all the time in virtual LED mode.

LPT Base – Three options for LPT port setting. Not applicable in virtual LED mode.

Demos to screen – By selecting this option, the individual LED settings panel will become active to reflect the states of LEDs in demos.

Demo1 – Music demo. The LEDs are controlled by the amplitude of the music.

Demo2 – Music demo. The LEDs will light up in circle as music progresses.

Demo3 – Non-music demo to illustrate dimming effect of LEDs.

Flash – The RGB LED will all turn on to create a flashlight effect.

Reset – resets the LP3943 in its default state and erases all previously programmed value on the control panel to reflect the LP3943 default state.

Quit – Quits the program.