OR4E6 Evaluation Board Tutorial

Overview

This tutorial will assist first-time users of the ORCA OR4E FPGA how to use the evaluation board to understand the device features as well as the capabilities of the evaluation board. To use the tutorial, the user must have an installed copy of ORCA Foundry 2001 software and an understanding of the ORCA Device Programming Download Cable which is described in the Lattice Semiconductor technical note TN1009. Users should also reference the OR4E-680PBGAM Evaluation Board Users Manual.

The tutorial and the supporting design files can be downloaded from the design tools section of the Lattice web site at http://www.latticesemi.com. The tutorial design was created for use as a template for future designs. This simple design will illustrate the functionality of the evaluation board

Getting Started

The following steps will make the proper board interconnections for power supplies, input signals, and output signals.
- Add push-on jumper shunts for the following.

Jumper	Pin	Pin	Description
J101	1	2	Relay Ctrl
J64	3	5	2.5V setting
J59	3	5	2.5V setting
J63	3	5	2.5V setting
J69	3	5	2.5V setting
J74	3	5	2.5V setting
J78	3	5	2.5V setting
J75	3	5	2.5V setting
J70	3	5	2.5V setting
J36	2	3	DAT0-SER/PAR
J119	1	2	Switch power 3.3V

- Connect short 16-contact(2x8) IDC ribbon cable between J46[LEDS] and J20[DEBUG]
- Connect single patch cable between J34/Pin 3(OSC A-THXO) to J8/Pin 2(GPIO7[T2])
- Connect single patch cable between J29/Pin1 to J6(GPIO6[AL13])
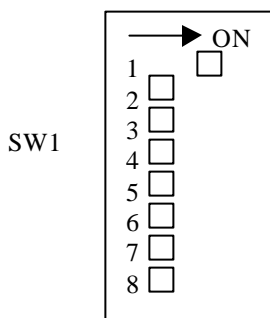- Place SW1.1 to "on" position (Figure 3)

Figure 1

![Lattice Semiconductor Corporation logo]

- Connect DB-25 connector of download cable to DB-9 adapter
- Plug DB-9 connector in a serial PC port(COM1or COM2)
- Plug Condor Wall supply into J67 and Power source to power up board

Programming the Device

- Connect 8-pin dongle of download cable to J3
- Green LED on download cable should light
- From an MS-DOS command window (computer with ORCA Foundry 2001 installed)
  Type"devprog –c serial –p COM1(or 2) – j w OR4E6_eval_1.bit <enter>
  > OR4E6_eval_1.bit can be downloaded from the design tools section of the Lattice web site at
  > http://www.latticesemi.com
- Download cable LED should illuminate yellow while loading
- Downloading bit stream
- D18 LED lights and download cable LED goes green
- After D18 lights the LED array will sequence from D1 to D20 with SW1.1 switched toward device(Logic 1)