Low Cost FPGA

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1 Altera MAX V

We verified the Altera Chip soldered to the PCB. We used the similarities with the Max V chip on the Krypton Board used in Digital Systems lab. We took a Krypton Board without the Daughter card and the Altera Max V chip. The daughter card provided a feedback to the main board. Hence we needed to short two ground pins on the main Krypton Board which were equivalent to this feedback so that we had a common ground. We used a basic VHDL code to turn on / off LED using a switch to test this chip.

2 FT2232H

We verified the FT2232H cicuit on the PCB using the Datasheet . We first verified it using the Krypton Board and then using the Altera MAX V chip on the PCB. The FT2232H output (pin 49) is further used to feed the 1.8 Volts voltage rail. We used an external circuit comprising of a voltage regulator for 3.3 Volts.

3 CDCE925-Clock Synthesizer and I2C

We learnt the I2C protocol. Our aim was to program the CDCE925 chip of Texas instruments using I2C according to the guidelines in the datasheet.
First of all we established I2C connection between two arduinos. We used Arduino Uno and Arduino Leonardo as Master and Slave respectively. We used Master Writer/Slave Receiver codes for the Master sending the data to slave and Master Reader/Slave Sender codes for the slave sending the data to the Master.Then we used I2C to program an RTC using Arduino. This was done for a basic understanding of the I2C protocol.
Then we used the Wire library of Arduino to program CDCE925 chip. We set the output frequency to be 50 MHz.