



Figure 6: Simulation results from modelsim when fault LG1 detected



Figure 7: Top level RTL Schematic

7. Conclusions

A novel technique for fault detection and classification from transmission line is proposed. The logic is first developed in MATLAB environment to wavelet transform which extracts high frequency details from signals and processes the high frequency details to give information about the faults. The important features of proposed technique are as follow 1) Only a single db6 wavelet filter is used for each phase 2) Adaptive Threshold and KNN algorithm is used 3) Adaptive calculation of threshold is involved which is used for classification purpose 4) No complicated energy calculations are involved 5) Modelsim is used for simulation purpose 6) The logic is easy to implement on SPARTAN3 FPGA board. FPGA provide an affordable customized option for testing the performance of new protection technique. FPGA are reusable if in case design problem detected at testing stage the chip can be reprogrammed after certain change were made in the design It has been verified through various EMTP/ATP simulated fault cases that the system operation is fast, highly reliable, and secure.

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