FPGA Implementation of 3 bits BCH Error Correcting Codes

Abstract

This paper describes the prototyping of a BCH (Bose, Chaudhuri, and Hocquenghem) code using a Field Programmable Gate Array (FPGA) reconfigurable chip. BCH code is one of the most important cyclic block codes. Designing on FPGA leads to a high calculation rate using parallelization (implementation is very fast), and it is easy to modify. BCH encoder and decoder have been designed and simulated using MATLAB, Xilinx-ISE 10.1 Web PACK and implemented in a xc3s700a-4fg484 FPGA. In this implementation we used 15 bit-size code word and 5 bits data, any 3 bits error in any position of 15 bits has been corrected. The results show that the system works quite well.

References

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Issue-6, January 2013.


Index Terms

Computer Science

Communications

Keywords

Error correcting codes  BCH codes  encoding  decoding  FPGA