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Title:

Design and Implementing of a Chaotic Communication System Using FPGAs

Abstract:

There is one great benefit gained from using programmable devices for implementing the systems which is the design modification. This tool considered as a very appropriate for implementing the chaotic systems. In the thesis, a general review to the dynamical systems and to the FPGA board are presented. The synchronization subject which is considered as the backbone idea to the chaotic systems application is described with two different types: PC and adaptive synchronization. The synchronization methods are applied with Rössler dynamical system and the results are achieved.

The adaptive synchronization method is considered as a basic for implementing the communication system which is designed with CPM modulation type. The synchronization as well as the communication system are implementing in the FPGA with RTL schemes. A noisy channel is added for testing the robustness against the circumstances effects.