

# **Configurable Logic Operations Using Hybrid CRS-CMOS Cells**

# ABSTRACT

Memristors have recently begun to be explored in logic operations. In this paper, a compact scheme using complementary resistive switching (CRS)-CMOS cells (CCCs) for logic operations and data storage is proposed. Several logic operations, including IMPLY, IMPLY-AND, AND, NAND, OR, and NOR, are realized with CCCs. Then the AND–OR logic and the OR–AND logic are presented to realize the programmable logic arrays built with CCCs, providing opportunities for memristor-CMOS integrated circuits.

# EXISTING SYSTEM

- Although IMPLY gates and CRS-based logic gates can be exploited to realize various logic functions with a few memristors.
- All of these logic functions required a well designed sequencer to operate the logic gate.
- Boolean function required more than one clock to perform the computation, which incurs high delays for Boolean operations.

# PROPOSED SYSTEM

- In this paper, we present the CCC to construct the memory, which simplifies the reading operations and provides a new approach to realize logic operations.
- The CRS-CMOS cell (CCC) is presented to realize several logic operations, including IMPLY, AND, IMPLY-AND, NAND, OR, and NOR, whereby programmable logic arrays (PLAs) can be built with CCCs to realize logic functions in a simple configurable way.
- Besides, the CCCs can be used to build the nonvolatile memory to eliminate the destructive read in the memory built with CRS.

# SYSTEM REQUIREMENTS

## HARDWARE REQUIREMENTS:

- Processor - intel core i3
- RAM - 2GB
- Hard Disk - 20 GB

## SOFTWARE REQUIREMENTS:

- Tool - Tanner/Microwind

# REFERENCE

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