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Embedding of Read-Only Memory in Resistive Random Access Memories

The technology provides a method for physically implementing lookup tables by embedding Read Only Memory onto existing Random Access Memory, significantly improving access speed and performance in electronic systems.

Current Random Access Memory (RAM) technology that utilizes lookup tables to accomplish computations is hindered by its inability to optimize the use of Read Only Memory (ROM). Many applications, such as the evaluation of transcendental math functions, digital signal processing, decoding tables, and built-in self-test, utilize lookup tables. Lookup tables are commonly stored in off-chip memory, which are fetched on-chip by the microprocessor when data in the lookup table is needed.

Researchers at Purdue University have developed a new technology that provides a methodology for physically implementing lookup tables by embedding ROM onto existing RAM. This implementation greatly improves the performance of electronic systems in applications that use lookup tables by increasing the speed at which the lookup tables can be accessed by the microprocessor.

Advantages:

-Faster access to ROM for the microprocessor, specifically useful in the application of lookup tables

-Capacity of ROM can be as large as the RAM without degrading the performance of the RAM

Potential Applications:

-RAM manufacturing

-Computer technology

TRL: 3

Intellectual Property:

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Category
Semiconductors/Fabrication & Process Technologies
Semiconductors/Devices & Components

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