

# Green Mountain Semiconductor spikes for NASA

*RRAM-based radiation-tolerant spiking neuromorphic computing architecture enables unsupervised asynchronous low power and low latency processing*

BURLINGTON, VT, US, June 13, 2024 /EINPresswire.com/ -- [Green Mountain Semiconductor](#), a design house involved in AI-related circuit design since 2014 and specializing in Custom Analog, Digital, and Mixed Signal Design with a focus on Memory (DRAM, SRAM, and Emerging NVM), has been awarded an additional Phase I contract by NASA.

Green Mountain Semiconductor has been focusing on the development of ultra-low power in-memory processing circuits for AI.

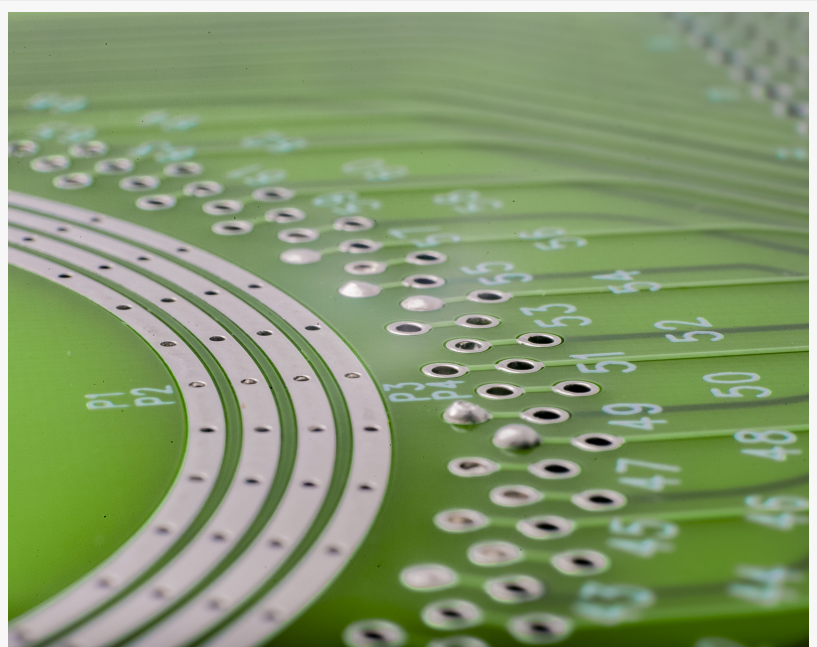
Under this new NASA agreement, an RRAM-based radiation-tolerant neuromorphic architecture will implement an unsupervised spiking neural network model.

This architecture leverages RRAM's unique properties to enhance the efficiency and robustness of AI systems in space environments. RRAM's radiation tolerance enables the uninterrupted operation of AI systems in space missions, addressing a critical challenge where traditional approaches fall short.

The spiking neural network further allows self-training and an asynchronous behavior by reacting only when there is a proper stimulus, both optimizing latency and power consumption.

The design will incorporate leaky integrate and fire circuits, and detection circuitry for firing signals. Radiation tolerance of the circuitry will be addressed using techniques previously developed by Green Mountain Semiconductor.

This proof of concept intends to demonstrate the benefits and efficiency gains of the proposed



Neuromorphic test board



We are truly honored by this new mark of confidence from NASA towards our innovations. The RRAM and spiking neural networks combination should provide a path for autonomous edge AI processing”

*Ryan Jurasek, CTO at Green Mountain Semiconductor*

design, directly applicable for Phase II research and beyond, facilitating the work towards larger designs.

Potential applications include NASA space missions with critical sensor processing where autonomous decision making is paramount. It also applies to systems operating in isolation and having to make decisions when facing unexpected situations.

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