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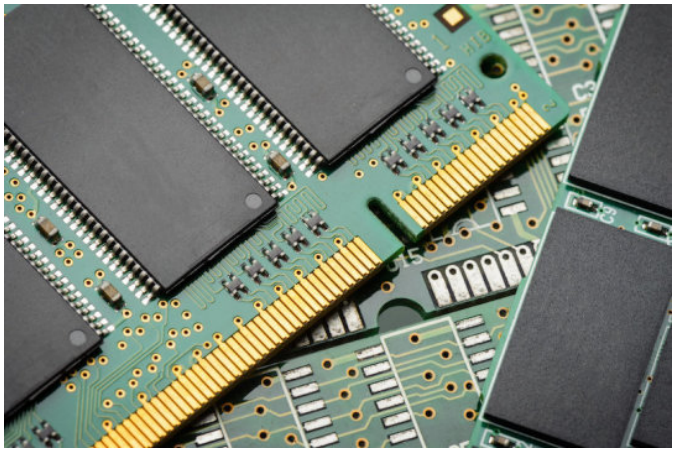
26 June 2019

Scientists at Lancaster University in the UK propose a means to "solve the digital technology energy crisis"-- Universal Memory, a technology possibly able to replace both DRAM and SSD storage.



According to the researchers, a "tsunami of data" brought about by increased use of computers and other such devices is set to consume 20% of global electricity by 2025. The Universal Memory device promises to consume much less power, as well as allow for PCs able to "instantaneously and imperceptibly" go in an energy-saving sleep mode, even between key strokes.

Combining the properties of DRAM and SSD storage is a fairly difficult task. After all, the data stored on DRAM is volatile, and is continuously "refreshed" to avoid it being lost, while writing and erasing SSD storage is slow, energy intensive and deteriorates the storage medium. To solve the issue the Lancaster University researchers employed quantum mechanics to create an oxide-free, floating-gate memory cell which boasts non-destructive read capabilities and long-term storage at room temperature.

"Universal Memory, which has robustly stored data that is easily changed, is widely considered to be unfeasible, or even impossible, but this device demonstrates its contradictory properties," physics professor Manus Hayne of Lancaster University claims. "The ideal is to combine the advantages of both without their drawbacks, and this is what we have demonstrated. Our device has an intrinsic data storage time that is predicted to exceed the age of the Universe, yet it can record or delete data using 100 times less energy than DRAM."

So far the team has patents for the technology in the US ahead of potential commercialisation,

and several companies are reportedly interested in the research.

Go Room-temperature Operation of Low-voltage, Non-volatile, Compound-Semiconductor Memory Cells