Cloud

ReRam memory chips perform processing tasks

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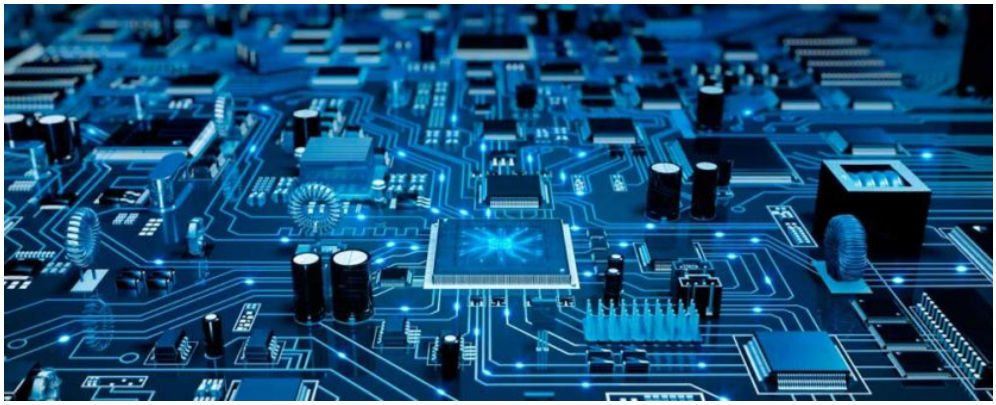

An international team of computer scientists has successfully discovered a way to make memory chips perform computing tasks typically carried out by processors.

The study, conducted by researchers at Singapore's Nanyang Technology University and Germany's RWTH Aachen University and Forschungszentrum Juelich, aimed to find a way to accelerate computing tasks and discover alternate solutions to computer processors such as those manufactured by the likes of Intel and Qualcomm.

Current devices require that data is transferred from memory storage to the processor for computation. The new research means that data could now be processed in the same place as it is stored, resulting in much faster, more energy-efficient and

using state-of-the-art memory chips called Redox-based resistive switching random access memory (ReRAM). This type of chip, developed by leading chipmakers such as SanDisk and Panasonic, is one of the fastest commercially-available memory solutions. However, instead of being used for memory, the researchers showed how the ReRam module could also be made to process data.

‘ReRAM is a versatile non-volatile memory concept. These devices are energy-efficient, fast, and they can be scaled to very small dimensions. Using them not only for data storage but also for computation could open a completely new route towards an effective use of energy in the information technology,’ said lead researcher Professor Rainer Waser.

The scientist also notes that the properties of ReRam, such as its long-term storage capacity, low energy usage and its ability to be produced at nanoscale, have encouraged global semiconductor firms to invest in researching the technology.

For example, in late 2015 HP and SanDisk announced a partnership to design technologies based on HP’s memristor and SanDisk’s ReRam. At the time, the two firms claimed that the memory would be up to 1,000 times faster and 1,000 times more durable than flash storage options.

The NTU research team now plans to involve industry partners to help advance ReRam-based processing. It also said that it will continue to look into improving computing speeds and testing its performance in real life computing situations.