Test results show efficiency improvements for technology manufacturing

Leti confirms Weebit's ReRAM can be manufactured using a single added mask in embedded designs; novel methods improve the yield

25 November 2019 – Weebit Nano (ASX: WBT), a developer of next generation memory technology for the global semiconductor industry, has confirmed test results showing its arrays can be manufactured for embedded applications with just a single added mask, as the Company continues towards productisation.

Testing conducted over recent months with research partner Leti, the French research institute recognised as a global leader in the field of micro-electronics, confirmed it is possible to produce Weebit's ReRAM technology as an embedded memory using two, or possibly only one, additional mask, compared to the seven to 10 additional masks normally required for current Flash memory. A second study by the joint Weebit-Leti team confirms novel methodologies can improve production yield by mitigating device malfunctions. These achievements can significantly benefit manufacturing costs and potential profits.

Semiconductor devices are produced by depositing layers of different materials, one on top of the other, patterning them through masks in a series of steps. When going to geometries below 28nm the mask set required to produce a semiconductor device can cost millions of dollars. The first report from Leti confirms that a "one additional mask" strategy is possible and defines the trade-offs between using one and two masks.

During the production of semiconductor wafers there are always challenges resulting from the fact that some of the dies on the wafer malfunction due to the delicate production process. One of the biggest challenges in semiconductors is to improve the yield (number of working dies per wafer) trying to get closer to 100 per cent, as this has a direct impact on the profits from the device. The second report from Leti analyses the different causes for malfunctions in ReRAM devices and defines ways to avoid or fix these issues in ways which can improve the yield and increase the profitability of each device.

Coby Hanoch, CEO of Weebit Nano, said: "To date, Weebit has been working in a development fab where the focus was on producing a viable silicon oxide memory technology. Now that the technical parameters of our ReRAM technology are at the forefront of the market and we are in the process of moving to production facilities, issues like the number of masks and yield become very important and can make a significant impact on the speed of the company's progress. The reports from Leti are very encouraging.

"In discussions with prospective customers, any efficiencies such as reduced mask rates and yield improvements have been high on their agenda as they seek to optimise the production process and supplier chain. With Weebit arrays now being confirmed as being able to use a smaller number of masks while providing increased yield we will be able to save our customers millions of dollars, reduce manufacturing times significantly and decrease error risks in their production processes."

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About Weebit Nano Limited

Weebit Nano is a leader in the development of next generation computer memory technology, and plans to become the new industry standard in this space. Its goal is to address the growing need for a significantly higher performance and lower power computer memory technology. Weebit Nano's ReRAM technology is based on fab-friendly Silicon Oxide, allowing the company to rapidly execute, without the need for special equipment or preparations. The company secured several patents to ensure optimal commercial and legal protection for its ground-breaking technology.

Weebit Nano's technology enables a quantum leap, allowing semiconductor memory elements to be significantly cheaper, faster, more reliable and more energy efficient than the existing Flash technology. Weebit Nano has signed an R&D agreement with Leti, an R&D institute that specialises in nanotechnologies, to further develop SiOx ReRAM technology.

For more information please visit: http://www.weebit-nano.com/