

## Weebit Nano Limited

Gearing up for the big push towards commercialization

WBT recently extended its agreement with Leti, its French research collaboration partner, to facilitate the next step in commercializing its ReRAM memory technology. This extension includes adapting the production process of WBT's ReRAM technology to 300mm wafers at the 28nm node.

Promising results from latest tests

Related to this commercialization process, WBT's latest ReRAM cells demonstrated stable voltage and endurance levels. WBT and Leti have demonstrated array-level endurance, i.e. across an array of memory cells, above 100,000 cycles, which is on par with expectations in the storage memory market and significantly better than NAND Flash, today's dominant non-volatile memory (NVM). Combined with earlier announced retention data, we believe the SiOx ReRAM investment case has been substantially derisked, i.e. transferring the technology to 300mm wafers should be relatively straightforward.

We spoke with WBT CEO Coby Hanoch about these developments as well as some of the recent collaborations WBT announced.

Watch the full interview with Coby Hanoch in the link below.



Partnerships with Silvaco to accelerate OEM incorporation

WBT also announced a Development Program Partnership with Silvaco (a leading global provider of software, IP and services for design of IC's and electronic systems for the semiconductor industry) to model the

Number of shares (m)	1,591	
Number of shares FD (m)	1,806	
Market capitalisation (A\$ m)	39.8	
Free Float (%)	100%	
12 month high/low A\$	0,082/0,01	
Average daily volume (k)	4,910	

## Weebit Nano Ltd. (ASX:WBT)

Semiconductors &  
Semiconductor Equipment

Australia

Risk: High

Founded in Israel in 2015, Weebit Nano Ltd (WBT) is developing a newly emerging computer memory technology that combines the best of today's mainstream memory technologies, i.e. DRAM and Flash memory. Non-volatile like Flash and nearly as fast as DRAM, WBT's SiOx ReRAM will likely be able to complement and partially replace DRAM and Flash if and when the technology can be commercialized in a few years' time.

**BUY**

Current price: A\$ 0.025

Price target: A\$ 0.07

14 February 2019

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electrical behavior of SiO<sub>x</sub> ReRAM devices. This collaboration should help accelerate the incorporation of WBT's ReRAM modules into OEM customers' designs.

### Using memory cells in logic functions would be groundbreaking

Additionally, in a new collaboration agreement with Technion, one of Israel's leading Technology research institutes, WBT's ReRAM technology will be tested in Real Processing-In-Memory (Real PIM) environments. Simply put, this means using the memory cells themselves to perform logic functions, i.e. structure them so they actually form logic gates.

Traditional chip architecture separates the logic functions from the storage functions, i.e. on different chips (with the exception of SRAM which is typically very close to the processor on the same chip). This distance takes time and energy to bridge and thus leads to efficiency loss. However, if memory modules could somehow process information instead of just storing it, data could be sent to the memory module for local processing before being sent back to the CPU for further processing. This would save valuable time and money.

Theoretically, due to the structure of a ReRAM cell, WBT's technology could have an application in this field. The company's new research collaboration with Technion is all about finding out if theory holds up in practice.

### Collaboration with Politecnico di Milano to progress AI applications in hardware

In addition to the earlier announced collaboration with IIT Delhi, WBT has set up a collaboration with Politecnico di Milano, a leading Technical university in Italy, also to further develop ReRAM's potential in the field of hardware-based Artificial Intelligence (AI).

Because of the ReRAM cell structure, which resembles biological synapses, the technology can potentially be tweaked to serve AI applications in a way that will be much faster and cheaper (less energy consumption) than software-based neural networks.

Additionally, hardware-based neural networks are much faster to train on new data sets and can often even learn autonomously.

BrainChip (ASX:BRN) is also developing a hardware-based AI chip and we believe this field has great potential given the many benefits compared to software-based neural networks. There is broad future applicability of hardware-based neuromorphic chips in areas such as autonomous driving, advanced driver assistance (ADAS), edge computing in IoT devices etc.

### A wide variety of application areas now being investigated

There are now four identified, potential application areas for WBT's technology:

- Embedded memory in SoC (System-on-a-Chip) designs;
- Storage Class Memory (SCM);
- Artificial Intelligence chipsets;
- Real Processing-In-Memory (Real PIM).

Embedded memory for SoC's is WBT's most direct path to market, in our view, but SCM could be close behind if sufficient traction can be garnered from potential licensees. WBT is just starting out on the path to neuromorphic chips, unlike BRN, so that development process is likely to take several more years at least. Lastly, Real PIM is also a fairly new field with a lot of development work ahead.

### Buy rating reiterated and A\$ 0.07 price target unchanged

We believe that embedded memory will remain the key value driver for WBT for the foreseeable future. The company is taking the right steps in this commercialization process, in our view, with the move to 300mm wafers now well underway. We reiterate our Buy rating for WBT as well as our price target of A\$ 0.07 per share.

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