

ASX RELEASE

24 June 2020

4DS UPDATE: PROGRESS AT IMEC

- **Completed analysis of the “Initial Platform Lot”, fabricated prior to HGST joining the 4DS/imec collaboration.**
- **Completed analysis of the “Additional Wafers Lot”, fabricated with process condition contributions from HGST and imec.**
- **Measured the highest speed and endurance in the Additional Wafers Lot that have ever been recorded by the Company.**
- **Measured retention and additional studies will be conducted to establish upper limits.**
- **The Initial Platform Lot was focused on integration of 4DS’ memory and imec’s megabit platform and has enhanced 4DS’ understanding of, and validated, the process steps required.**

4DS Memory Limited (ASX:4DS) (**4DS** or the **Company**) refers to its ASX announcement dated 28 May 2020, and is pleased to provide this update on the status of the development of its memory technology.

Chief Executive Officer and Managing Director, Dr Guido Arnout, commented “We are delighted with the continued support we receive from imec and Western Digital/HGST and their contributions to the fabrication process. These results confirm that we have made a giant step closer to our goal of fabricating a megabit memory device suitable for Storage Class Memory in a state-of-the art fab”.

Dr Lode Lauwers, Senior Vice President of Business Development at imec stated “Collaborating with different companies on different technologies is part of imec’s business model to accelerate innovation and we welcome the strengthening of our collaboration with 4DS, with announced contributions from industry leaders in the domain.”

During the COVID-19 lockdown, the Company received:

- The Initial Platform Lot of 300mm wafers, fabricated prior to HGST joining the 4DS/imec collaboration, to validate the integration of 4DS’ memory cells on imec’s megabit platform;
- A set of 300mm Additional Wafers Lot, fabricated with process condition contributions from HGST and imec – after HGST joined the 4DS/imec collaboration – to accelerate the Company’s stated goals of (i) developing a repeatable process for producing 4DS’ memory using state-of-the-art production equipment, and (ii) demonstrating this process by fabricating a 4DS megabit memory on imec’s platform with high endurance and read speed comparable to DRAM.

As soon as local COVID-19 ordinances started to be eased, the Company reconfigured its testing lab in compliance with local COVID-19 social-density and social-distancing requirements so that wafer testing could resume safely in early June. The results of this testing are outlined below.

Additional Wafers Lot

As of today's date, the Company is pleased to confirm that it has measured the highest speed and endurance in the Additional Wafers Lot that have ever been recorded by the Company:

- The best recorded speed at near DRAM speed exceeds Storage Class Memory requirements without the need for speed crippling error correction;
- Endurance is two to three times better than previously reported. Actual endurance may be significantly higher but is currently not quantified due to available lab time and test equipment capacity; and
- The Company also measured retention and the results remain confidential to the Company and its partners until such time the upper limits of retention can be more accurately defined.

Initial Platform Lot

- Testing of the Initial Platform Lot validated the integration process steps required to integrate 4DS memory cells with imec's megabit platform. The information gathered from this testing has enabled 4DS to identify which process steps will be further tuned, to benefit future platform iterations.

Next Steps

The process conditions used on the Additional Wafers Lot and the Initial Platform Lot will form the basis for the pathway to ensure the best outcomes can be achieved. The Company will undertake planning work with imec in July (with input from HGST) and will update the market in its quarterly report at the end of July 2020.

- ENDS -

Approved for release by the Board Contact information

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About 4DS

4DS Memory Limited (ASX: 4DS), with facilities located in Silicon Valley, is a semiconductor development company of non-volatile memory technology, pioneering Interface Switching ReRAM for next generation gigabyte storage in mobile and cloud. Established in 2007, 4DS owns a patented IP portfolio, comprising 22 USA patents granted and 11 patent applications pending and or filed, which has been developed in-house to create high-density Storage Class Memory. 4DS has a joint development agreement with Western Digital subsidiary HGST, a global storage leader, which accelerates the evolution of 4DS' technology. 4DS also collaborates with imec, a world-leading research and innovation hub in nanoelectronics and digital technologies. The combination of imec's widely acclaimed leadership in microchip technology and profound software and information and communication technology expertise makes them unique.

For more information, please visit www.4dsmemory.com.

About imec

imec is the world-leading research and innovation hub in nanoelectronics and digital technologies. The combination of our widely acclaimed leadership in microchip technology and profound software and ICT expertise is what makes us unique. By leveraging our world-class infrastructure and local and global ecosystem of partners across a multitude of industries, we create ground breaking innovation in application domains such as healthcare, smart cities and mobility, logistics and manufacturing, energy and education.

As a trusted partner for companies, start-ups and universities we bring together close to 3,500 brilliant minds from over 75 nationalities. Imec is headquartered in Leuven, Belgium and also has distributed R&D groups at a number of Flemish universities, in the Netherlands, Taiwan, USA, China, and offices in India and Japan. In 2016, imec's revenue (P&L) totalled 496 million euro. Further information on imec can be found at www.imec-int.com.

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For more information, please visit www.imec.be.

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