A DISRUPTIVE TECHNOLOGY FOR STORAGE CLASS MEMORY
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GLOBAL DATA EXPLOSION PRESENTS HUGE CHALLENGES.

The semiconductor industry recognises the challenge and is investing billions of dollars annually on research and development to create a solution.
Currently DRAM and NAND Flash are the main technologies utilized today. Both are US$40 billion markets. A new innovation is required and the industry refers to it as Storage Class Memory - over time this is predicted to have a market size as large as DRAM and NAND Flash.
STORAGE CLASS MEMORY. +

Emerging as the leading new category to extend the memory hierarchy.

STORAGE CLASS MEMORY
Combines the best characteristics of DRAM and NAND Flash

- **Faster** – DRAM-like read speed
- **Cheaper** – NAND Flash-like costs
- **Non-volatile** – Retains data when power is off
MARKETS FOR STORAGE CLASS MEMORY.
THE STORAGE CLASS MEMORY SOLUTION.

- World-leading Silicon Valley based ReRAM developer
- 4DS is the most advanced Interface Switching ReRAM
- 19 US patents developed and granted and 4 pending
- The most promising ReRAM cell for Storage Class Memory
- Joint development agreement with Western Digital subsidiary HGST since 2014
- Strategic collaboration with imec signed in November 2017
- Successful A$3.45 mil placement in November 2017
### STORAGE CLASS MEMORY REQUIREMENTS

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CURRENT STATUS.

4DS Interface Switching ReRAM has displayed enough relevant and meaningful data in each category to now move immediately to production of a Megabit chip, a giant step forward.

- Scales to geometries needed for high-density memory and 3D: 40nm memory cell
- Endurance far exceeds NAND Flash
- Endurance yield >97%
- Read speed comparable to DRAM – an area-based ReRAM first
- No need for speed crippling error correction – a ReRAM first
- Current retention data adequate for Storage Class Memory
THE LEAP TO STORAGE CLASS MEMORY.

- Achieves Working 40nm ReRAM Cells
- Achieves Endurance Milestone
- 4DS ReRAM Reaches Read Speed Comparable to DRAM
- Renews HGST Agreement
- imec Collaboration
  - Focused on Megabit chip development
  - Current retention data is sufficient
  - A$3.83 mil placement / options exercised
- CORPORATE / TECH
  - Strategic Partnership/s
  - Development of Megabit chip
imec, is the world’s #1 independent semiconductor development institute

- Collaborates with the who’s who of electronic products and systems
- Collaborates with makers of high-volume high-density memories
- Has a world leading track record in the transfer of semiconductor processes
- Uses the same tools as industry for high-volume production of high-density memories
- Has a proven megabit memory platform to fast track development of Megabit chip
- Used this platform to explore a wide range of emerging memories
JOINT DEVELOPMENT AGREEMENT.

HGST, a subsidiary of Western Digital Corporation (US$27 billion market cap), the largest global leader in digital storage.

- Strategic innovator in emerging high growth technologies
- Commenced in 2014 – Renewed in 2015, 2016 and 2017
- Insight into what is important in a data-centric world
- Siva Sivaram, Head of Memory at Western Digital, commented “We are committed to ReRAM, it is scalable with greater density, lower cost and latency and longer endurance”*

*12/8/2016 EE Times – 14 Views from the Flash Summit
Global expertise founding and building high-tech companies.

**JIM DORRIAN**
Non-Executive Chairman
- Served as CEO of several Silicon Valley companies
- Extensive M&A experience
- Partner at VC firm Crosspoint Venture Partners

**Dr GUIDO ARNOTT**
CEO & Managing Director
- 30+ years in commercialising electronics technology
- Successes include, Power-Escape, CoWare, CrossCheck Technology and Silvar-Liso

**HOWARD DIGBY**
Non-Executive Director
- Former senior roles at IBM, Adobe, Gartner and the Economist Group
- Non-Executive Director Elsight Ltd and Chairman of Omni Market Ltd
- Advisor to a number of early stage technology companies

**Dr SESHUBABU DESU**
Chief Technology Officer
- Expert in thin films, semiconductor processing and non-volatile memories
- Professor, Dean and Head of Electrical Engineering at various universities

**DAVID McAULIFFE**
Executive Director
- Experienced company director
- Involved in numerous capital raisings and in-licensing of technologies
- Founder of several companies in Australia, France and the UK, many of which are now ASX listed

**MICHAEL VAN BUSKIRK**
Chief Engineering Officer
- Executive roles with a number of leading memory companies in Silicon Valley
- These include, Adesto Technologies Corporation, Innovative Silicon Inc and Spansion Inc.

Last transaction was the sale of BillMeLater – a company Jim founded and sold to PayPal for US$1 billion.
## CAPITAL STRUCTURE

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<tbody>
<tr>
<td>ASX Code</td>
<td>4DS</td>
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<tr>
<td>Market Cap (Fully Diluted)</td>
<td>$48 Million*</td>
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<tr>
<td>Ordinary Shares on Issue</td>
<td>942 Million</td>
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<tr>
<td>Unlisted Options</td>
<td>124 Million</td>
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<tr>
<td>Cash</td>
<td>$5 Million – Nov 2017</td>
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<tr>
<td>Board and Management</td>
<td>8%</td>
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<tr>
<td>Top 20</td>
<td>33%</td>
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* As at 23 November 2017
SUMMARY.

+ 4DS is developing a breakthrough Interface Switching ReRAM Storage Class Memory solution
+ Significant progress to date is pivotal for Storage Class Memory
+ Four year strategic partnership with HGST, leader in digital storage
+ imec - strategic collaboration to develop megabit chip with the world-leading researcher in nano electronics
+ Consistently achieves stated milestones
+ Strong patent portfolio wholly owned and developed in-house
+ World-class team of memory specialists, material scientists and test engineers
+ Board experienced in founding, building and exiting high tech companies

4DS is addressing the massive memory demands of tomorrow