

# Next-generation 5mm hybrid hard disk drive launched

November 1 2012

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The "A-Drive", one of the world's thinnest 5mm hybrid hard drive in a 2.5" form factor, was officially launched by Mr. S. Iswaran, Minister in the Prime Minister's Office and Second Minister for Home Affairs and Trade & Industry, to commemorate the Data Storage Institute's (DSI) 20 years of R&D in the area of data storage capabilities.

The "A-Drive" represents the next generation of storage innovation providing capacities of up to 1 TB [Hard Disk Drive \(HDD\)](#) with 32 GB Solid State Drive (SSD). This potentially allows the "A-Drive" to store over 250,000 songs in its 5mm body. The "A-Drive" also addresses limitations of the popular, yet expensive, flash-based SSD, as well as the conventional HDD for the consumer and business industry.

DSI's "A-Drive" is set to change the consumer and enterprise landscape, targeted specifically for tablets, ultrabooks, and future data centres. With its slim form factor, the "A-Drive" could fit into tablet devices, greatly expanding its storage space while extending battery life by up to 30%. The "A-Drive" will be a cheaper alternative to the SSDs currently used in ultrabooks, offering the same instant-on capability but with larger storage capacity. In addition, the "A-Drive" can be extended for enterprise storage applications, reducing power consumption by up to 50%, resulting in greener and more efficient data centres with better optimisation of the already limited rack space.

"Today, our year-long vision of creating a 5mm thin hybrid [hard drive](#) in 2.5" form factor with increased storage capacity and reduced power

consumption at a lower cost for manufacturers has become a reality," said Dr. Pantelis Alexopoulos, Executive Director of DSI. "We have managed to fit an amazing amount of innovation and advanced technology into a thinner, cheaper, and faster design, and we think the consumer and enterprise impact will be significant."

One of the main challenges in reducing the thickness of current 7mm hard disk drives by almost 30% without compromising on its performance and stability is its spindle motor design. To achieve a reduction in size, DSI researchers developed a proprietary axial field motor which runs smoother, quieter, more efficiently, lowering [power consumption](#) by up to 70% yet at a fraction of the cost of SSDs. The motor's design has been patented, along with 30 other unique designs for the "A-Drive". In addition, DSI has collaborated with multinational corporations and local companies, such as Seiko Instruments, Miyoshi, and Unisteel, to develop key components for the "A-Drive".

"Our capabilities today have been the result of two decades of collaboration with industry partners around the world. This has enabled DSI to develop groundbreaking solutions like the 'A-Drive'. We look forward to future partnerships as we continue our drive towards new innovations that will shape the data [storage](#) landscape," said Dr. Alexopoulos.

Provided by Agency for Science, Technology and Research (A\*STAR), Singapore

Citation: Next-generation 5mm hybrid hard disk drive launched (2012, November 1) retrieved 25 June 2024 from <https://phys.org/news/2012-11-next-generation-5mm-hybrid-hard-disk.html>

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