

### **Spin Transfer Technologies \$22.8 million convertible bridge facility and update on technology**

#### **STT announces \$22.8 million convertible bridge facility**

Proceeds to fund development of commercial grade ST-MRAM with specifications consistent with requirements to replace existing SRAM and DRAM memory, and bridge to Series B fund-raise

Funding underscores conviction in the value of STT's technologies, delivery capability, and timeframe for commercial adoption of MRAM, and follows extensive due diligence exercise

Boston - 5 October 2017 - Allied Minds (ALM: LSE) subsidiary, Spin Transfer Technologies, Inc. (STT), a leading developer of high-speed, high-endurance, ST-MRAM technology, today announced it has secured \$22.8 million of funding via a convertible bridge facility. Proceeds will be applied to fund development work of next-generation ST-MRAM designed to achieve industry-leading speed, size, low-power consumption, and endurance. STT believes these superior specifications could accelerate the replacement of existing SRAM and DRAM memory, in particular in the faster growing Mobile and Enterprise segments where power consumption and cost are particularly important. Allied Minds and STT will host a conference call providing an update on STT's technology and competitive advantages and the convertible bridge facility at 9am UK time today (details below).

The convertible bridge facility is underwritten by Allied Minds, with other investors expected to take down a portion of the \$22.8 million principal in due course. The facility is designed to bridge STT to the completion of a Series B funding round, targeting strategic investors and planned to conclude by end of Q1 2018.

In the period since March 2017 the Boards of Allied Minds and STT have undertaken extensive due diligence on the MRAM industry and STT's technological and commercial positioning. Based on this diligence, including detailed engagement with senior industry experts and potential strategic partners and customers, Allied Minds and STT are convinced of the potential advantages of STT's technology and its ability to deliver a market-ready product as the expected adoption of commercial MRAM begins in 2018. The convertible bridge facility has been underwritten by Allied Minds based on this conviction.

STT believes that its technology holds the potential to enable MRAM to replace not only all embedded non-volatile memories, but also cost effectively replace SRAM and persistent DRAM, the "holy grail" for MRAM technology, with a >\$20 billion annual market in the Enterprise and Mobile segments alone. To achieve this goal, MRAM must match or exceed speed, size, power consumption, and endurance specifications as well as the cost structure of SRAM and DRAM. MRAM development work across the industry has so far yielded technology which meets some but not all of these requirements. While MRAM has inherently lower power consumption and is non-volatile, today's solutions meet neither the speed nor endurance of existing SRAM and DRAM products. STT's patented technologies are seeking to solve this trade-off:

1. Differentiated perpendicular magnetic tunnelling junction (pMTJ) design and processing
  - Leveraging its world class magnetics team and state of the art R&D Fab, STT is seeking to enable smaller, faster and easier-switching pMTJ structures: the core magnetics technology of MRAM
  - STT's own R&D Fab line allows it to accelerate the refinement of the structure
2. Spin Polarizer (also known as PSC)
  - A proprietary, patented magnetic polarizing layer which has shown the ability to materially boost the key parameters of the pMTJ, including switching speeds, retention and lower power consumption
  - Has the potential to be used with others' pMTJs, creating licensing opportunities
3. The Endurance Engine
  - A collection of techniques and circuit innovations uniquely tuned to the physics of the pMTJ designed to extend the switching endurance of any pMTJ by up to six orders of magnitude. This benefit would be realised with no material changes to the pMTJ
  - Further, the Endurance Engine leads to smaller write currents (lower power consumption) and smaller base transistors
  - The Endurance Engine is the culmination of the synergy achieved at STT between magnetic material scientists and circuit and systems engineers
  - Like the Spin Polarizer, The Endurance Engine has the potential to be used with others' pMTJs, creating further licensing opportunities

MRAM is expected to emerge as a replacement for non-volatile memory technology. STT's technologies have the potential to unlock the performance criteria necessary for MRAM to emerge as a mainstream player in the memory market, replacing SRAM and ultimately DRAM. STT's Spin Polarizer and Endurance Engine have the scope for universal application across

MRAM technologies developed by all industry players, offering STT multiple potential revenue paths. It is expected that commercial grade ST-MRAM will be available in 2019, opening up significant revenue generation opportunities for those companies with market-ready products.

Tom Sparkman, CEO of STT, commented "I am excited about the future of MRAM and the promise of a low-cost, persistent memory solution for fast growing Enterprise and Mobile applications, replacing DRAM. STT's technologies will enable it to earn a significant share of the memory market. I am delighted STT has secured funding to refine our technologies and unlock commercial grade ST-MRAM."

Jill Smith, CEO of Allied Minds, commented "Given our conviction in the value potential of STT's technologies and capabilities to deliver on this potential, underscored by positive feedback from multiple strategics across the MRAM industry, we are pleased to underwrite the convertible bridge financing. The bridge financing provides runway for STT to complete critical development milestones and its planned Series B financing with strategic investors."

A conference call for Allied Minds investors and analysts will be held at 9am UK time today hosted by Tom Sparkman, CEO of STT, and Jill Smith CEO of Allied Minds. A slide deck presentation accompanying this call is available at: [www.alliedminds.com](http://www.alliedminds.com)

Dial in details:

United Kingdom Toll: +44 3333000804 PIN: 63226894#

United Kingdom Toll-Free: 08003589473 PIN: 63226894#

US Toll: +1 6319131422 PIN: 63226894#

US Toll-Free: +1 855 85 70686 PIN: 63226894#

URL for international dial in numbers:

[http://events.arkadin.com/ev/docs/NE\\_W2\\_TF\\_Events\\_International\\_Access\\_List.pdf](http://events.arkadin.com/ev/docs/NE_W2_TF_Events_International_Access_List.pdf)

**ENDS**

For more information, please contact:

**Allied Minds plc**

+44 7771 872 922

Neil Pizey, Head of Corporate Development

**FTI Consulting**

+44 20 3727 1000

Ben Atwell / Brett Pollard

**About Allied Minds**

Based in Boston, Allied Minds plc is an IP commercialisation company focused on technology and life sciences. With extensive access to U.S. federal government laboratories and universities, as well as partnerships with leading U.S. corporations, Allied Minds forms, funds, and operates a portfolio of companies with the objective of delivering successful liquidity events that will generate attractive long-term returns for its investors and stakeholders. Allied Minds supports its businesses with capital, resources, and expertise.

For more information, please visit [www.alliedminds.com](http://www.alliedminds.com)

**About STT**

Spin Transfer Technologies, Inc. (STT) is seeking to develop ST-MRAM technologies that uniquely combine patented magnetics technologies, circuits and memory architectures to create the industry's lowest-cost, highest-performance ST-MRAM memories. STT's disruptive ST-MRAM solutions are ideal replacements for embedded and stand-alone SRAMs as well as future DRAM devices, affecting more than half of the \$300+ billion semiconductor industry. The company was established by Allied Minds and New York University. For more information, please visit [www.spintransfer.com](http://www.spintransfer.com).

**About SRAM**

SRAM is pervasively used in virtually all mobile, computing, and industrial applications. SRAM is a fast memory that never wears out, but has the drawbacks of being very costly, very wasteful of power, and is not persistent. On the other hand, traditional ST-MRAM is much smaller and lower cost, uses no power when storing data, and holds data for a long period when power is removed. Unfortunately, conventional ST-MRAM does not match the benefits of SRAM - it lacks speed and wears out in seconds or minutes of operation rather than operating reliably for over 10 years of continuous use. STT has developed unique technologies to make ST-MRAM have similar lifetime and speed as SRAM.

**About DRAM**

DRAM is the electronics industry's most widely used memory type and is present in nearly all electronic systems. DRAM is a slower but much less expensive memory than SRAM, and otherwise shares SRAM characteristics of long life, power

inefficiency, and lack of persistence.

**Allied Minds Forward-Looking Statement**

This press release contains statements that are or may be forward-looking statements, including statements that relate to Allied Minds' future prospects, developments and strategies. The forward-looking statements are based on current expectations and are subject to known and unknown risks and uncertainties that could cause actual results, performance and achievements to differ materially from current expectations, including, but not limited to, those risks and uncertainties described in the risk factors included in Allied Minds' regulatory filings. These forward-looking statements are based on assumptions regarding the present and future business strategies of Allied Minds and the environment in which it will operate in the future. Each forward-looking statement speaks only as at the date of this press release. Except as required by law, regulatory requirement, the Listing Rules and the Disclosure Guidance and Transparency Rules, neither Allied Minds nor any other party intends to update or revise these forward-looking statements, whether as a result of new information, future events or otherwise.

This information is provided by RNS  
The company news service from the London Stock Exchange

END

MSCMIBATMBMMBTR