Life Beyond Flash:
New Non-Volatile Memory Technologies

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Flash Memory Summit

Technology is an Enabler

Customers want more capability, not more devices…

…technology and cost make this integration possible…

…to fuel the 24x7 “always on” user experience

And memory is the key driver for this enablement

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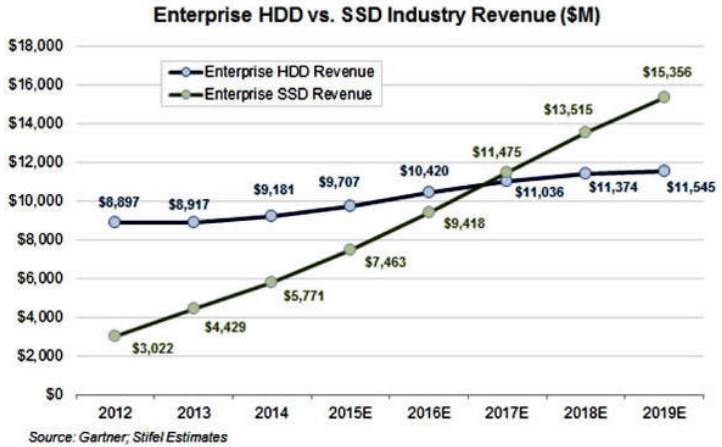
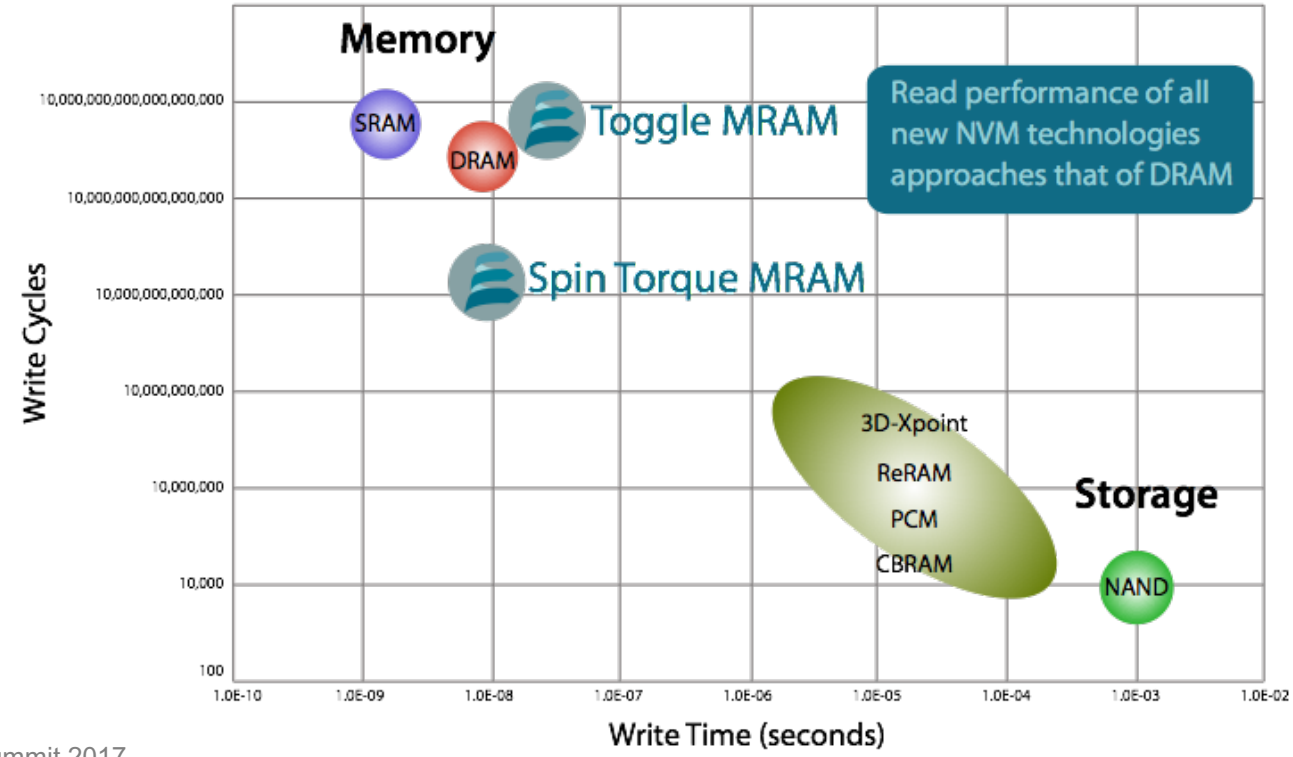
Enterprises Move Towards Persistence

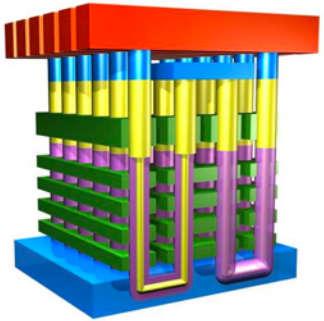
- Gartner estimates a flash Enterprise memory crossover in 2017
- New standards like Gen-Z, OpenCAPI and CCIX drive new capabilities
- As flash overtakes the datacenter, persistence is driven deeper into system design



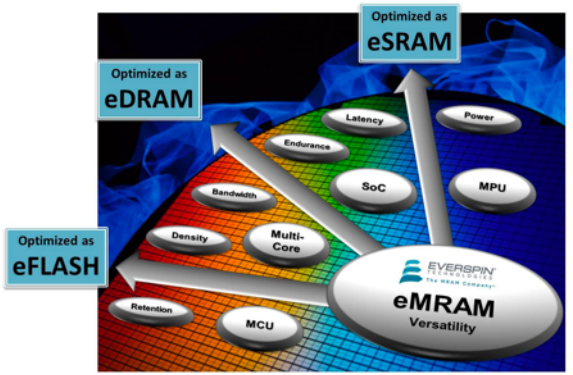
ST-MRAM Pairs DRAM Performance & NAND Persistence



ST-MRAM Delivers Better Versatility



- NAND stacks for density, increasing layers
- We are now at 72 Layers
- Latency improvements expected



- ST-MRAM scales down with process nodes
- From 40nm to 28nm today; 22nm & beyond in the future
- A more diverse strategy

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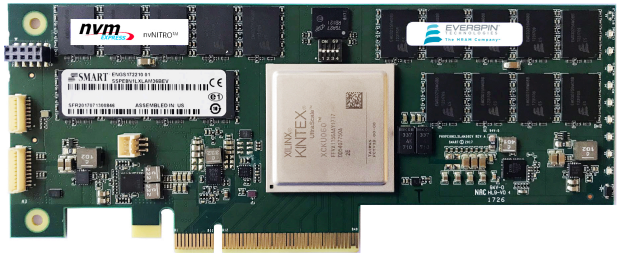
nvNITRO™: ST-MRAM In Action

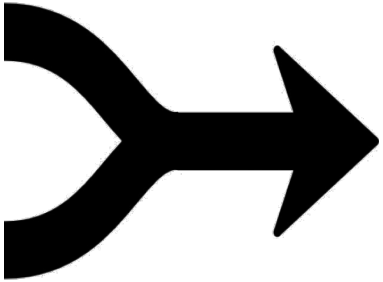
- Delivering endurance, performance and persistence
- Radiation tolerant
- Greater operating temperature range
- No wear leveling required
- Less unprotected data in flight
- No SuperCaps or batteries

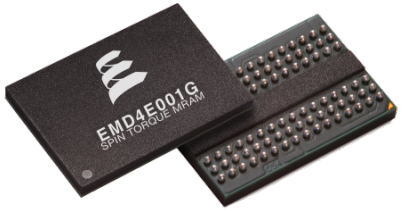


DRAM Collides With Persistence

The speed and addressability of DRAM

The persistence of flash memory





ST-MRAM combines speed and persistence in a highly durable, power efficient memory

- Pooling memory is becoming more critical
  - Gen-Z, OpenCAPI – targeted memory at targeted workloads
- The pursuit of ST-MRAM is the future
- You could have come by the Everspin booth to learn more ☺