Phase Change Memory

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Phase Change Memory Is a Disruptive Memory Technology

- PCM is developing steadily
- Advantages
  - Low latency reads and writes
  - Capable of high throughput
  - Independent operations through multiple banks
  - High endurance
  - Scalable below 10nm
  - Bit/byte alterable with erase operation not needed
- Current disadvantages
  - Power being reduced through contained cell technology
  - Data retention through reflow requires in-system programming

PCM Product Transitions

Feature	90nm	4Xnm	2Xnm
Density	32-128 Mb	1 Gb	8+ Gb
Interface	NOR	LP-DDR2	LP-DDR2
Array write speed	Up to 5MB/s	Up to 10 MB/s	>>10 MB/s

- PCM has started in low value markets and slowly being targeted to higher value spaces
- Expected to eventually move into storage and Storage Class Memory (SCM)
- To see PCM performance in storage, see this paper: http://www.cs.columbia.edu/~kar/pubsk/athanassoulis ADMS2012.pdf

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About Michael Abraham

- Architect in the NAND Solutions Group at Micron

- Covers advanced NAND and PCM interfaces and system solutions

- IEEE Senior Member

- BS degree in Computer Engineering from Brigham Young University

Santa Clara, CA
August 2012

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