SCM is between NAND and DRAM

Emerging Memory Technologies

- MRAM is far from the target
- PCM looks like less improvement
- ReRAM is newcomer to grow up
- ReRAM is powerful candidate
- Need more capacity for the future
Cross Point for Higher Capacity

The key: Selector and Integration

★ CP R&D has long history
★ But still under R&D

What are essential challenges?
Big Array of Cross Point Chip

- Big array is used to realize higher capacity
- Half selected cells are over 1k for example
- Need to treat long word line and bit line
- Need scaling to realize higher capacity

High current makes the chip design difficult
(ReRAM: ~50uA, PCM: >100uA)
Challenges of Selector Technology

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Most challenge for the product is “Small ΔVth”

In case of PCM, Ion > 100uA is more challenge
Summary

- CP is key to realize higher capacity chip
- Advantages of ReRAM over PCM in CP design
- We have still challenges of CP technology