



# NAND Flash Memory Trends

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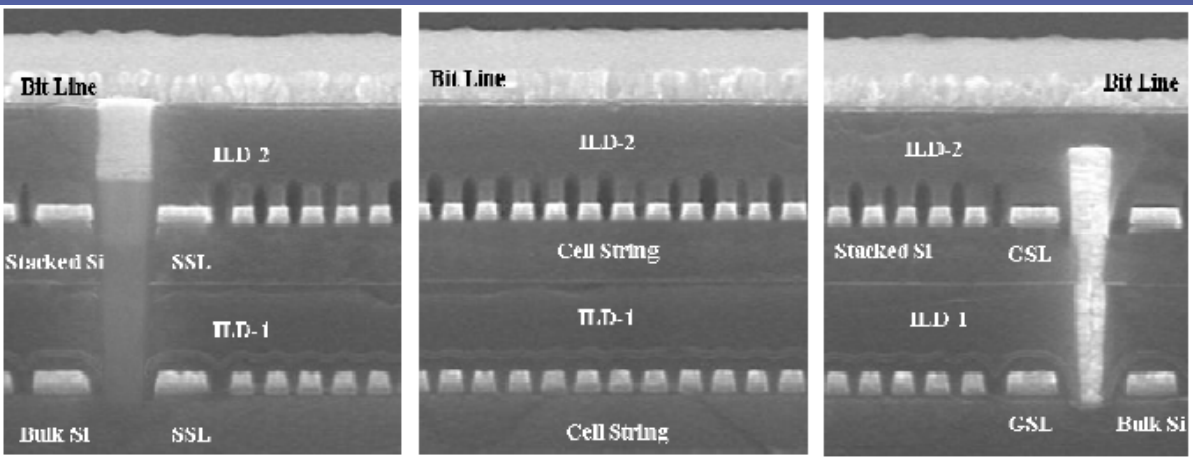


# Industry Trends

- NAND
  - Number of bits per cell ↑
  - Process complexity ↑
  - Design complexity ↑
  - Access latency ↑
  - Endurance ↓
- Market
  - Applications usage model and characteristics will dictate technology employed
  - 3C's
- Pricing < \$1/GB in 2011

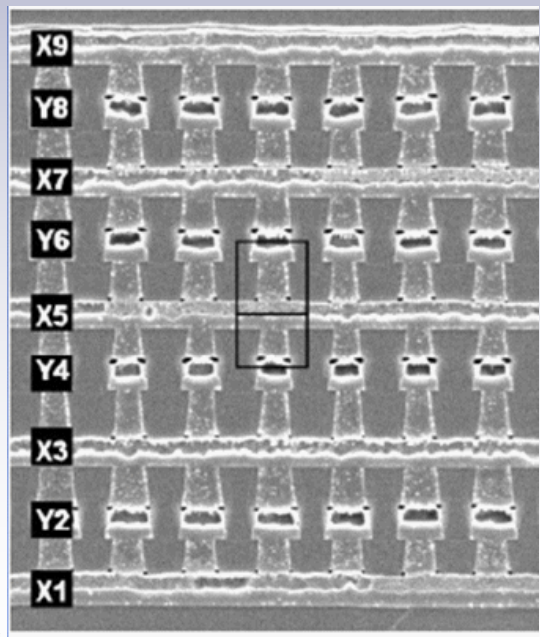
# The Future is UP?

TANOS



Source: K.Kim et. al., IEDM 2006

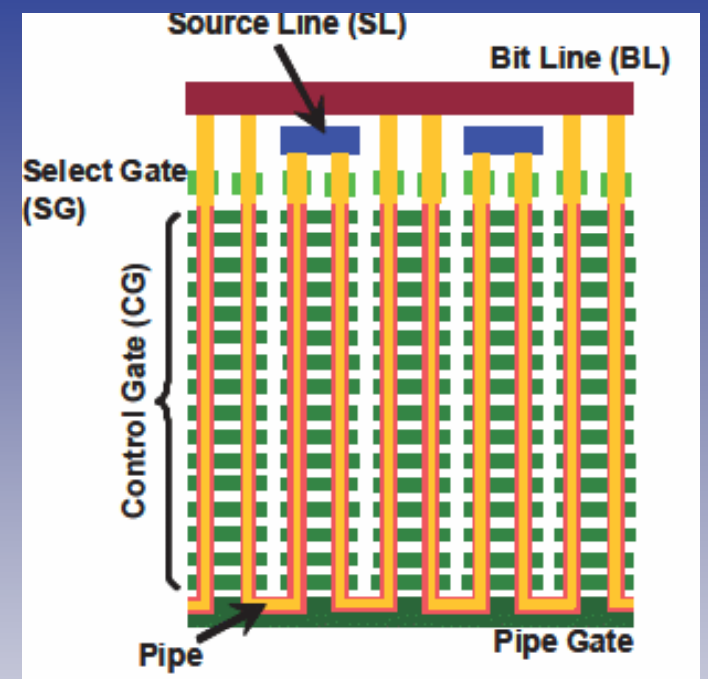
3D Memory



Santa Clara, CA USA  
August 2009

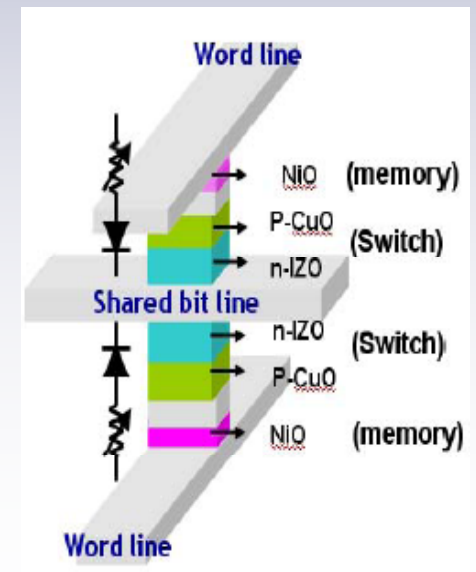
Source: SanDisk, FMS 2008

BiCS



Source: T. Maeda et. al., VLSI 2009

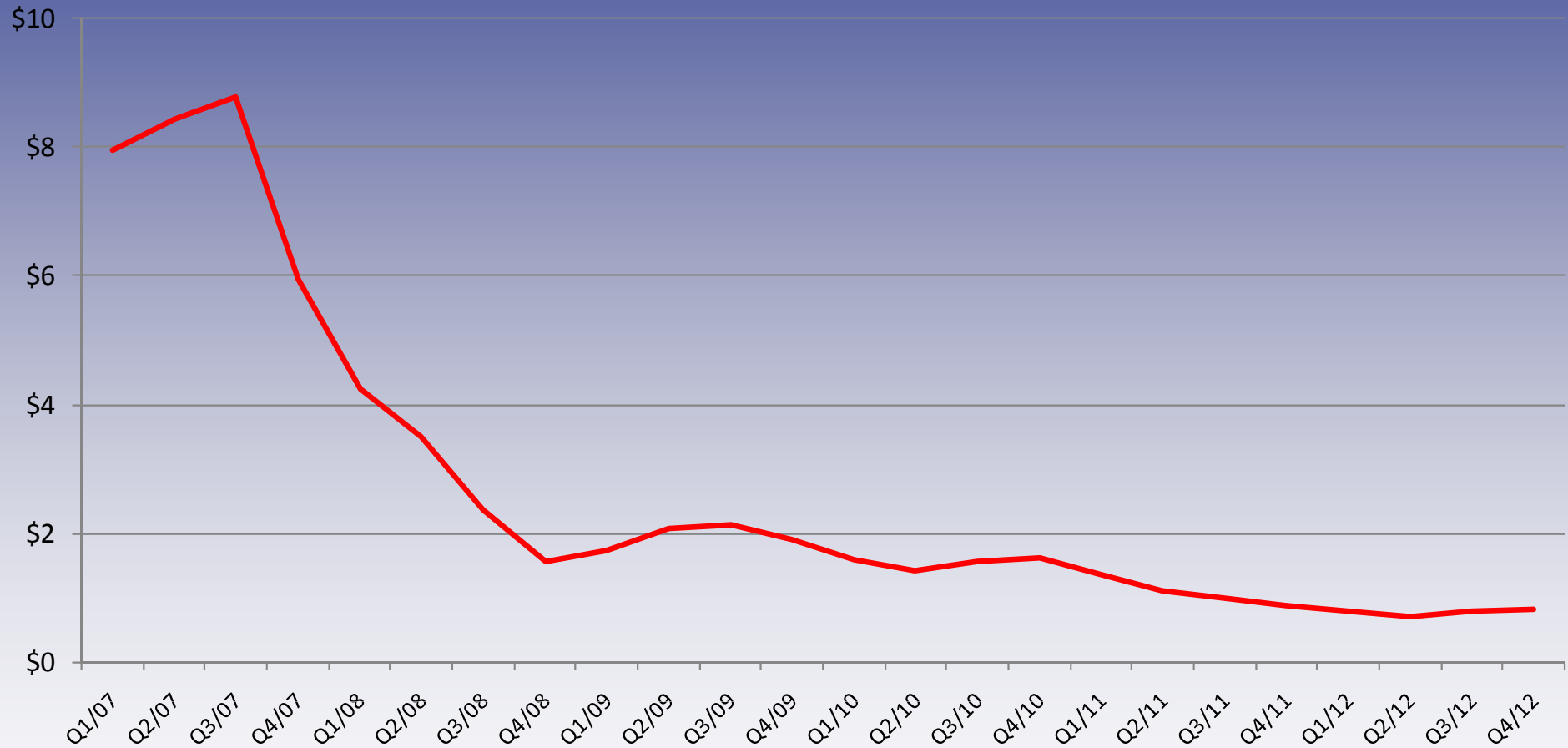
RRAM



Source: I.K. Yoo et al., IEDM 2007

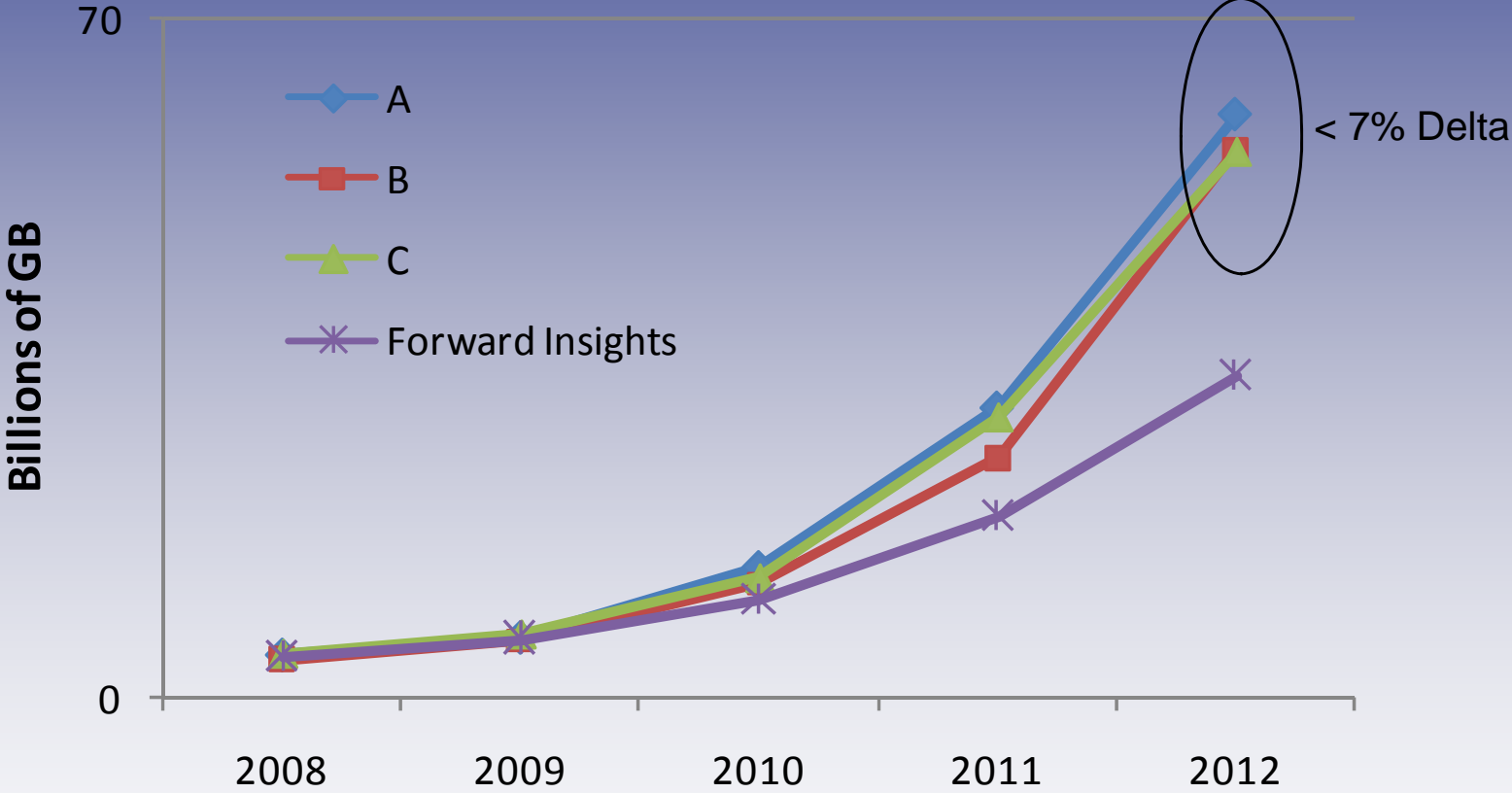
# Moderating Price Declines

**NAND Flash ASP / GB**



# A Fresh Perspective

## NAND Flash GB Forecasts



Q2/09 Forecasts



*"Unique and strategic perspectives on  
semiconductor memories, emerging memory technologies and  
solid state storage"*



*Forward Thinking*

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