

MKW Ventures Consulting, LLC

Overview

Mark Webb

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Confidential: Not for distribution

Experience

- Mark K Webb is Principal of MKW Ventures Consulting LLC
- 23 Years at Intel Corporation and IM Flash Joint Venture with Micron
 - Fab Manufacturing, System Manufacturing, Device Engineering, Product Engineering, Q&R Engineering. Flash, Logic, Communication technologies
 - Most recent: Manufacturing Director for Intel NVM solutions Group, Product Engineering Manager for IM Flash JV reporting to Senior VP/Corporate Officer
- Left Intel in July 2012, Started consulting business
- Focus on Business development for Memory/Storage and Memory technologies
 - NAND/DRAM cost, New NVM cost and product roadmaps
 - TSMC vs Intel Foundry, Samsung Foundry. Can Intel be successful in IDM2.0
- Clients have been OEMs/ODMs, Memory Companies, Storage/HDD companies, Industry Analysts, Sell and Buy side analysts
- Industry Contacts (monthly contact/exchanges) include
 - Senior Engineers and managers at multiple Memory manufacturers, Storage companies
 - Engineers and Managers at Logic manufacturers, Technology Companies, hyperscalers
 - Leading memory/SSD/Semiconductor industry consultants and analysts
- Mark's Experience and knowledge of Memory and Fab technologies is industry leading.

Q3 2023 Focus Areas

- NAND and DRAM costs and technology. Industry recognized expert
- DRAM and NAND Pricing, supply, demand
- AI impact on DRAM and memory Markets. Cost and volume for HBM and growth forecast
- Alternative NVM costs and revenue projections
- SSD vs HDD markets, growth, costs, strategies
- Logic (IDM and foundry) and Memory Fab wafer and unit costs
 - SOC costs, pricing, technology node roadmaps
 - Intel vs TSMC costs, 3nm vs 5nm and future 2nm costs
- China semiconductor ramp and memory companies
- Presented multiple papers on NVM/NAND/DRAM at annual FMS
 - Leading edge predictions on DRAM, NVM, NAND roadmaps each year

2023 Reports/Analysis

- NAND/DRAM Market
 - Current and modeled costs over time for industry and major suppliers
 - Wafer, assembly, test cost breakout
 - Quantitative Impact of different quality levels, screening, ECC/overprovisioning
 - Memory supplier models for dealing with customers, lead times, pricing
 - Fab start up costs, depreciation models, fixed and variable costs
 - Our Pricing Model and comparison to Dramexchange/Inspectrum
- New NVM Memories/Emerging Memory
 - Industry leading info on MRAM, ReRam, FERAM
 - Why did Intel Kill off Optane and what does that mean for other NVM
- AI Memory: HBM impact, graphics memory, SSD vs HDD needs. Volume over time
 - HBM volume, technologies, AI server share, Non-AI server impact

Potential Opportunities

- Who is the low cost producer on DRAM, NAND, new NVM
- When will MRAM, ReRAM and other technologies Ramp?
- Will SSDs ship more bits than HDDs ? When?
- Why does the Dramexchange pricing not match actual pricing. How much do people really pay for DRAM and NAND?
- When will HBM memory be more than 5% of DRAM bits (hint, not soon)
- How does Apple manage supply chain?
- What makes AMD successful or not in taking Share from Intel
- Is TSMC, Samsung, or Intel the leader in logic technology... why?
- Why are more HDD bits added than SSD bits each year.
- Who are the winners and losers in this new AI ecosystem? How much Impact will AI servers have.