

## Flash Memory

## Data Flash Market Tracker

By Michael Yang, Senior Analyst

## Forecast

## Frequency, Time Period

- Annual: 2-year historical, 5-year forecast
- Quarterly: Previous, Current & 1-year forecast

## Measures

- Factory Revenue
- Factory Megabit Unit Shipments
- Megabit Average Selling Prices

## Regions, Markets

- Worldwide

## Detail Level

- Product Type
- Density
- Suppliers Fab
- Application Market

## Market Share

- Data Flash Suppliers
- Flash Storage Card suppliers
- USB Flash Drive suppliers

## Applications/Products Covered

- Flash Storage Cards
  - Compact Flash Card, SD Card, Smart Media, Memory Stick, etc.
- Wireless Handsets
- USB Flash Drives
- Digital Still Cameras
- Other Consumer (MP3 players, PND, etc.)
- Solid State Drive

## Technologies Covered

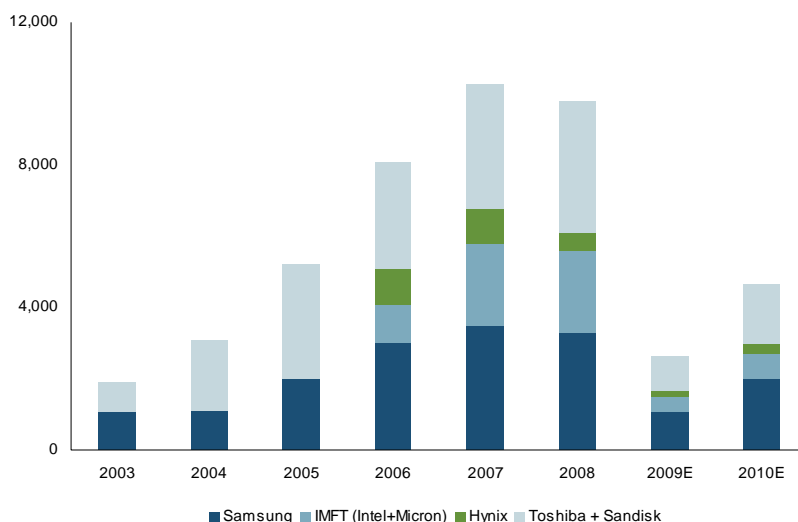
- SLC/MLC NAND
- NAND Process Technology
- Flash Storage Cards
- USB Flash Drives

Mobile handsets are quickly rising to become the number two application in NAND consumption, behind USB/Cards. Smartphones alone, a subcategory within Mobile Handsets, with an average density of 5.3GB per phone, will consume 1.2TB of NAND in 2010, an increase of 97% from 2009. NAND flash suppliers are preparing themselves for a record year in terms of revenue and unit shipments. Charting unprecedented territories, suppliers are increasingly cautious in monitoring capex, carefully balancing projected production against rising demand.

Other new applications such as eBooks and netbooks are also driving demand for NAND. SSD is on the rebound, propelled by lower price points introduced by the suppliers as well as more uniformity on reliability and performance as the product development matures. Microsoft Windows 7 provides another boost with optimized feature set specifically for SSDs, enabling better system management of files and optimization of wear leveling.

It is this set of new applications that will define the future of NAND. We expect seasonalities to be smoother and a market that is predicated less on speculation, instead focused on the overall swell of consumer electronics.

Capex \$M



## Key Issues Addressed:

- How does solid state drive impact the data flash market?
- How does the mini-hard drive device market impact the flash storage device market?
- Which applications will drive data flash market growth?
- Will NAND flash replace current NOR flash in handsets in the future?
- Who are the major flash storage card players?
- What are new emerging applications and their trends?

## Applicable To:

- PC, Consumer, Handset and Flash Memory Card manufacturers
  - Procurement
  - Marketing
  - Planning
  - Cost evaluation
- Memory Suppliers/Distributors
  - Marketing
  - Planning
- Financial Community

**Lead Analyst****Michael Yang, Senior Analyst**

Michael Yang is responsible for research in the areas of mobile flash memory and storage solutions including both solid state drives (SSDs) and hard disk drives (HDDs).

Prior to iSuppli, Michael worked Samsung Electronics Co. Ltd. where he led the product marketing efforts for SSDs and mobile memory chips. At Samsung, Michael expanded the company's mobile memory business, which included products like OneNAND, eMMC and MCP. He also held strategic and product marketing positions in both Fujitsu and Intel Corp's flash products group prior to his seven-year tenure at Samsung.

Michael earned a Masters of Business Administration at the University of California, Davis and a Bachelor of Science at California Polytechnic State University in San Luis Obispo.

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Global NAND Flash Market Forecast