

## Flash Memory Market Shares

## The Landscape of Flash Memory

By Mark DeVoss, Senior Analyst

**Deliverables**

- iSuppli will provide a Power Point and Excel file containing quarterly worldwide revenue market share data in the following areas:
  - Total Flash revenue by supplier
  - NOR revenue by supplier
  - NAND revenue by supplier
  - Revenue of Flash business in handset market by supplier
  - Multi-Chip Package revenue by supplier
- Quarterly reports delivered as:
  - Final estimates including excel files and an executive summary for that quarter delivered four weeks after careful analysis and confirmation of revenues by device type for all the suppliers

**Suppliers****Flash**

- NOR
  - Atmel
  - Macronix Int'l.
  - Numonyx
  - Samsung
  - Sharp
  - Silicon Storage Tech
  - Spansion
  - Winbond
  - Elite
  - Sanyo
  - Toshiba
- NAND
  - Hynix
  - Infineon
  - Micron
  - Renesas
  - Samsung
  - Toshiba
  - Intel
- MCP
  - Numonyx
  - Samsung
  - Sharp
  - Silicon Storage Tech
  - Spansion
  - Toshiba
  - Hynix

Flash Memory, primarily NAND Flash, remains one of the fastest growing semiconductor segments and the suppliers who support this semiconductor category are closely watched. NOR flash while in a period of flat to declining revenues is still forecasted to be nearly a six billion dollar business and remains a key yet declining memory component in mobile phones. Currently three suppliers, Spansion, Numonyx and Samsung dominate the NOR market. For NAND the traditional power houses Samsung, Toshiba and Hynix dominate but interest will also be focused on how the joint venture of Intel and Micron, IM Flash Technologies, progresses in this highly volatile memory category. The multi-chip package created an upsurge in revenue for the flash memory suppliers, as suppliers are counting the "other memory" in MCP's as part of their overall flash number. So how much of the supplier's reported revenue is really flash, and how much is attributable to MCP companion die? In addition to providing supplier analysis and key market outlooks for the balance of 2008, this iSuppli quarterly market share series provides insights into all of these issues.

Q2 2008 Quarterly Total Flash Market Memory Revenue by Supplier* (Millions of US Dollars)						
Q1'08	Q2'08	Company Name	Q2'08	Q2'08	Q2'08	Q2'08
Rank	Rank		Revenue	Percent Market Share	Percent Change from Q1'08	Percent Change from Q2'07
1	1	Samsung	\$1,642	33.2%	-4.5%	0.9%
2	2	Toshiba	\$974	19.7%	-2.0%	9.3%
4	3	Spansion	\$613	12.4%	7.5%	0.7%
3	4	Numonyx	\$540	10.9%	-14.3%	-34.3%
5	5	Hynix	\$450	9.1%	-13.1%	2.3%
6	6	Micron Technology	\$300	6.1%	11.9%	85.2%
7	7	Intel	\$174	3.5%	4.8%	-64.8%
8	8	Macronix International	\$77	1.6%	30.5%	4.1%
9	9	Silicon Storage Technology	\$54	1.1%	1.9%	-22.9%
10	10	Sharp	\$40	0.8%	-2.4%	-50.0%
Total Flash Revenue			\$4,939	100.0%	-3.3%	0.8%

\*Including Revenue from MCP (SRAM/ PSRAM/MCRAM/MCU/Logic)

**Critical Questions Answered**

- Who are the market share leaders in Total Flash, NOR flash and NAND flash and why?
- What percent of a company's total Flash revenue is actually in flash memory versus other memory (SRAM/ PSRAM/mDRAM)?
- What percent of a companies total flash revenue goes into the handset market, and which suppliers are gaining or losing market share?
- What were the memory product strengths of specific companies, and what market dynamics may change that in the next quarter?

**Who Should Read This?**

- Purchasing
  - Purchasing Managers
- Suppliers/Distributors
  - Marketing Managers
  - Semiconductor Vendors
- Investment Community
  - Financial Analysts
  - Market Research Analysts

### Lead Analyst

#### Mark DeVoss, Senior Analyst

Mark came to iSuppli with more than 33 years in the semiconductor business. At iSuppli, Mark will be responsible for market analysis for NOR Flash and Specialty Memory which includes SRAM, pSRAM and Multi-Chip-Packaging.

Prior to iSuppli, he was employed by Advanced Micro Devices in the Non-Volatile Memory Group now known in the industry as Spansion. During his long tenure at AMD, Mark worked in the product marketing group where he directed many product launches for both EPROM and Flash memory devices including some of the first low-voltage products that have become the mainstay of the wireless business. He also managed a worldwide segment marketing team dedicated to the wireless market that supported the company's highest volume, highest growth business, the cellular phone market. Mark was a key cross-functional team member and a technical lead for the development of multi-chip-packaging (MCP) technology for the memory group. This team's effort laid the foundation for Spansion's participation in this explosive market by developing and launching over 150 MCP products in two years time.

Mark holds a Bachelors of Science degree in Marketing from San Jose State University.

### Sample Table of Contents

On a quarterly basis:

- Flash Memory Market Overview
- NOR Flash Overview
- NOR Flash Outlook
- NAND Flash Overview
- NAND Flash Outlook
- Flash Supplier Market Share Analysis
- NOR Flash Supplier Market Share Analysis
- NAND Flash Supplier Market Share Analysis
- Flash Market Analysis for Mobile Handsets
- MCP Supplier Market Share Analysis

#### Tables

- Flash Revenue (\$M) including MCPs by Supplier
- NOR Flash Revenue (\$M) including MCPs by Supplier
- NAND Flash Revenue (\$M) including MCPs by Supplier
- Flash Revenue in Mobile Handsets (\$M) including MCPs by Supplier
- Multi-Chip Package (MCP) Spend (\$M) by Supplier

### Sample Database

- Total Flash
- Total NOR
- Total NAND
- Flash in Handsets
- 3rd Party Die Purchases