



# OBJECTIVE ANALYSIS

## Semiconductor Market Research

### OBJECTIVE ANALYSIS REPORT

#### UNDERSTANDING THE NAND MARKET

*Published November, 2007*

#### **Abstract:**

NAND flash has grown from insignificant sales into a \$16 billion market in less than ten years. This product, the fastest-growing technology in the history of the semiconductor market, is poised to displace DRAM as the leading semiconductor memory. Our report examines the NAND market, and explains how and why this technology has been able to grow so quickly, and projects what is likely to occur over the next five years. Covering NAND makers and consumers, the report explains the cost dynamics that govern NAND manufacturing and evaluates the technology's end markets and market drivers. Readers gain a thorough understanding of all sides of the NAND market, and learn strategies to participate in the market from any direction: make, buy, or sell. The study is based upon years of experience in the market, tight relationships with all buyers and sellers of the technology, and a keen understanding of the inner workings of NAND market dynamics.

#### **Contents:**

Executive Summary

How did NAND grow so quickly?

- A short history of NAND

- How NAND displaced camera film

- What happened to the disposable camera market?

- The end of the floppy disk in PCs

- The slow demise of the music CD market

NAND cost analysis

- Basic die size estimates

- Elements governing die sizes

- Changes to this approach over time

- Cost as a function of process

- Cost as a function of bits per cell

- Cost as a function of wafer diameter

- Elements that do not impact die cost

- Cost projections over time

NAND Makers (company profiles)

- Samsung

- Toshiba/SanDisk

- Hynix/STMicroelectronics

- Micron/Intel

- Key success factors

NAND Markets

- MP3
- Camera
- Cell Phone
- Cards
- USB
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  - Solid-State Drives
  - Video
  - Replacement for CDs/DVDs/other media
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- NAND Capacity
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  - Future capacity
  - Capacity/pricing relationship
  - Future capacity expectations
- Alternatives to NAND
  - NOR
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- Key Success Factors in NAND
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  - Manufacturing strategies
  - Strategies for card and USB makers
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