



OBJECTIVE ANALYSIS

Semiconductor Market Research

OBJECTIVE ANALYSIS REPORT

HYBRID DRIVES: HOW, WHY, AND WHEN

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Abstract:

Hybrid Disk Drives, the combination of a standard hard disk drive and a NAND chip, are a budding phenomenon enabled by new features of Microsoft's Windows Vista operating system. This technology promises to sweep the PC hard drive market. Objective Analysis' Hybrid Disk Drive study explains hybrid drive technical principals, its potential market, competing technologies, and how the NAND market, the PC market, the SSD market, and the HDD market will all be impacted by this new twist on an old technology.

Contents:

Executive Summary

What is a Hybrid Hard Disk Drive?

- Elements of a standard HDD

- The DRAM cache

 - Limitations of DRAM caches

- A NAND alternative

 - NAND's nonvolatile advantage

 - NAND's price advantage

- NAND as a cache for the HDD

- Intel's Turbo Memory alternative

Benefits of the hybrid HDD

- Shock tolerance

- Power consumption

- Access speed

- Reliability

- Where the truth lies

The role of software support

- Why a cache needs software support

- The "Instant-On" myth

- Issues with legacy

- Why will support take so long to materialize?

Alternatives to the SSD

- Solid State Drives

- Standard HDDs

- DRAM write caches

- Increased DRAM main memory

Cost implications of SSDs

- How NAND costs will add to HDD costs

- Consumer reaction to costs of alternatives
- HDD makers' plans
 - Devices currently introduced
 - Expectations for the future
- What will happen in the future?
 - Near-term expectations
 - Software changes and their impact
 - A forecast for Hybrid HDD shipments
 - The impact of Hybrid drives on the NAND market
- Summary