



Improving PC Efficiency with Flash Caching

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Why Flash Caching?

Price

HDD



Low Cost
Large Capacity

Flash cache



SSD



Low Power
Better Performance
Rugged

Flash caching provides the next big step in PC performance.

Performance

SAMSUNG

Flash Caching with Hybrid HDD

What is Hybrid HDD?



HDD

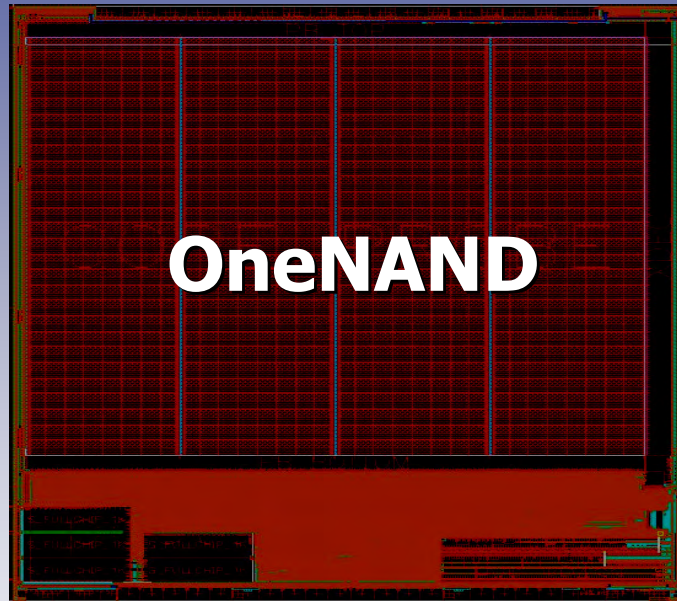
+
*embedded
Flash
cache*



*256MB – 4GB
NAND/OneNAND*

- ❖ SATA 3/1.5G interface
- ❖ Supports ReadyDrive for Vista
- ❖ **Multiple Hard Drive Suppliers**

What is OneNAND?



**SLC NAND Flash
+ Hardware ECC**

+

SRAM Buffers

+

**Synchronous
interface**

**OneNAND provides improved reliability &
higher speeds**

OneNAND Performance

	NAND*(SLC)	OneNAND (SLC)
Read Performance	29 MB/s (@Asynch)	108 MB/s (@83MHz)
Write Performance	8.5 MB/s (1x PGM) 16 MB/s (2x PGM)	9.3 MB/s (1x PGM) 17 MB/s (2x PGM)

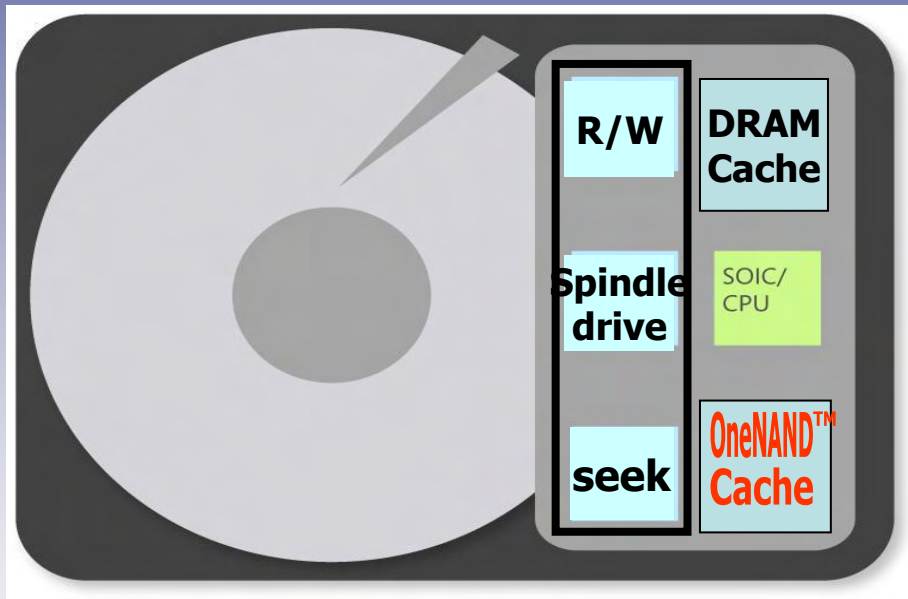


> 3X

* : x16, Large Block NAND

- Hybrid HDD advantages directly related to Size & Speed of the flash cache.
- OneNAND is the device of choice for Hybrid HDD.

OneNAND Cache in Hybrid HDD



As a Read Cache:

No latency for read from Flash

- Faster Boot
- Fast Application Launch

As a Write Cache:

Hard drive motor OFF for a longer time

- Lower power consumption
- Greater reliability

Booting Time Comparison

SAMSUNG



Benefits of OneNAND Hybrid HDD

- ❖ **Boot Time ~ 30% faster**
- ❖ **Application Launch Time ~ 30% faster**
- ❖ **Drive reliability - Better (Motor OFF for majority of time ~ 47%)**
- ❖ **Battery Life ~ 30 mins savings**

THANK YOU!

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