



Solid State Drives: Enabling MLC Technology in the Enterprise

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Introduction

The unparalleled cost effectiveness of multi-level cell (MLC) NAND flash technology has enabled it to pervade a wide range of applications despite having much slower performance and one-tenth the endurance of single-level cell technology (SLC). This year, MLC along with its lower cost cousin, 3-bit per cell technology will account for over 90% of the gigabytes shipped in 2009.

Due to demanding performance workloads, SLC technology has been the technology of choice for SSDs in enterprise computing environment. Therefore, it came as a surprise when in August of this year, STEC, the leading enterprise SSD vendor announced that it will offer MLC-based enterprise SSDs. However, STEC is not the first vendor to move to MLC technology in the enterprise. That distinction goes to Fusion IO which released a 320GB PCIe MLC ioDrive in April 2008. Fusion IO went a step further when it announced SLMLC, a technology based on MLC technology which combines the endurance and performance of SLC at a significantly lower \$/GB than SLC.

Are these products aimed at niche applications or do they suggest the beginnings of broader adoption of MLC technology in SSDs in the enterprise space? *Solid State Drives: Enabling MLC Technology in the Enterprise* provides a thoughtful analysis of SSD usage models and what applications could conceivably be addressed by MLC technology.

In addition, a detailed examination of SSD adoption in notebook, low cost mobile and desktop PCs is provided.

About the Author

Gregory Wong is the Founder and Principal Analyst at Forward Insights, a consulting and market research company focusing on non-volatile semiconductor memories. His expertise lies in the area of NOR and NAND flash memories as well as alternative non-volatile memories including FRAM, MRAM, phase change memory, nanocrystal memory, SONOS memory, spin-torque RAM and probe memory. He has in-depth knowledge of multi-bit technologies such 2-bit per cell NOR, NROM and NAND flash and emerging 3-bit per cell and 4-bit per cell NAND and 4-bit per cell NROM flash technologies and was the first analyst to analyse the technologies and their implications in a report entitled *The Next Killer Technologies?: 3-bit and 4-bit per cell NAND Flash Memories*. In addition, Greg has authored a variety of reports for Forward Insights related to alternative non-volatile memories, flash memory supply-demand and production, solid state drives and embedded flash memories.

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