NVMdurance Aviator
January 18, 2017

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Introducing NVMdurance Aviator
Solving one of the Biggest Challenges of 3D NAND Deployment

▶ Aviator provides the tools, including Log-Likelihood Ratio (LLR) tables and error models, necessary to deploy 3D TLC NAND in the toughest applications

▶ Aviator enables our customers to optimize NAND endurance and data retention based upon their usage conditions, differentiate their products, and reduce cost and time-to-market deploying 3D NAND solutions

▶ Aviator is based on NVMdurance's patented and proprietary machine learning technology, the world's only automated method of characterizing flash

Introducing NVMdurance Aviator
Background

- ▶ 3D NAND flash is the future of flash storage and promises to enable even more applications and disruption within the storage industry

- ▶ However, there are many challenges in getting 3D NAND, especially 3D TLC, to meet the requirements of high-performance, high-reliability applications, such as datacenter and enterprise SSDs
  - ▶ 2D NAND uses BCH ECC – off-the-shelf solutions prevalent
  - ▶ 3D NAND requires advanced ECC, such as LDPC – minimal off-the-shelf solutions
  - ▶ Implementing advanced ECC requires deep characterization of the flash technology
    - ❑ Characterization is largely a manual task for everyone else
    - ❑ Resources and capability that not many companies possess
  - ▶ The 3D NAND supply chain is currently suffering from these challenges

NVMdurance Product Offering – Machine Learning is our Core

NVMdurance patented Machine Learning technology

- Deep characterization of flash technology

Pathfinder

- Provides optimal flash trim sets for a given set of inputs

Aviator

- Tools, including LLR tables and error models that optimize flash for customer-specific usage conditions

Navigator

- Firmware residing on flash controller that monitors health of flash over stages of life and improves reliability
- Can also be customized to enable differentiation and use-model optimization