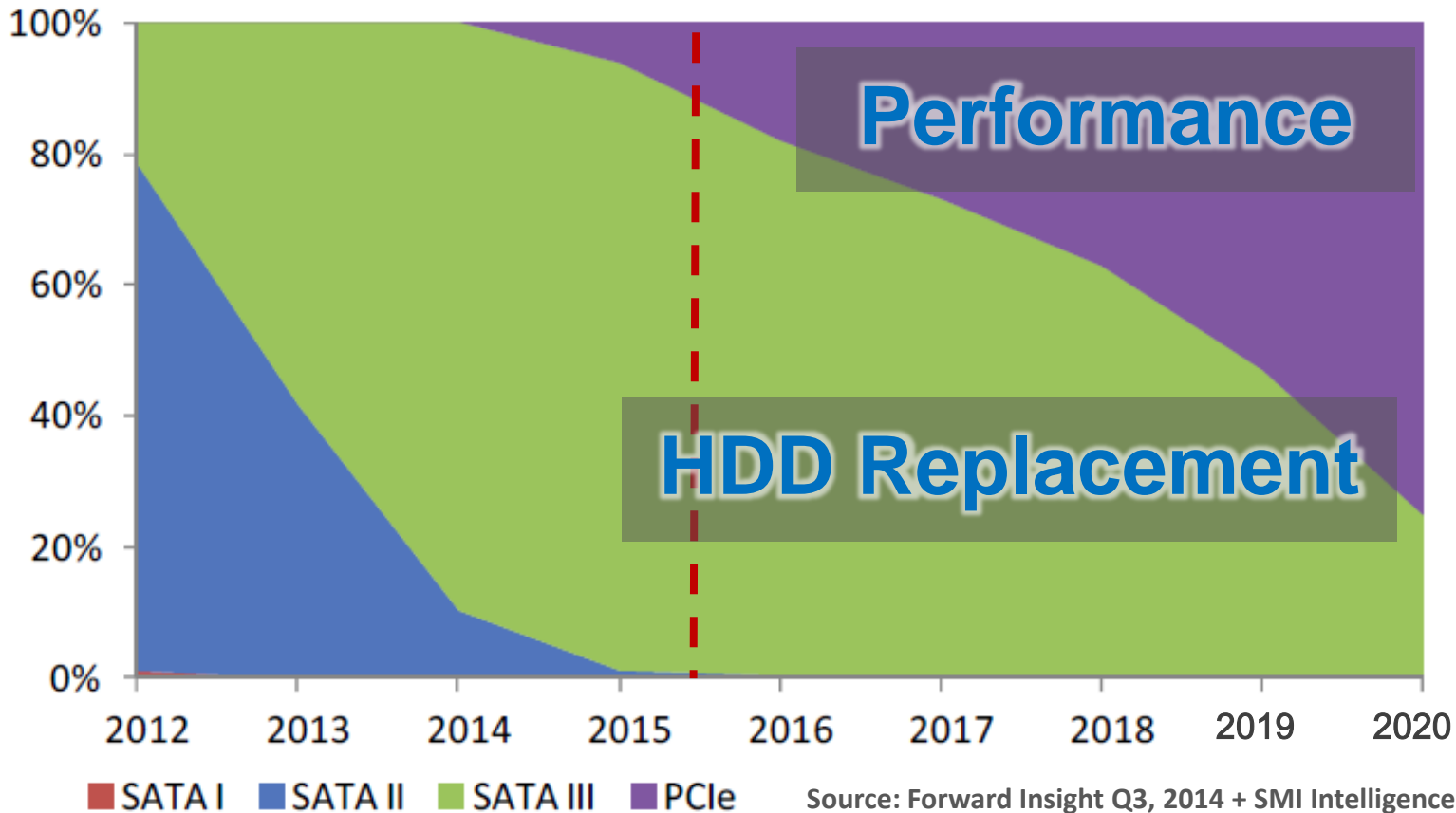




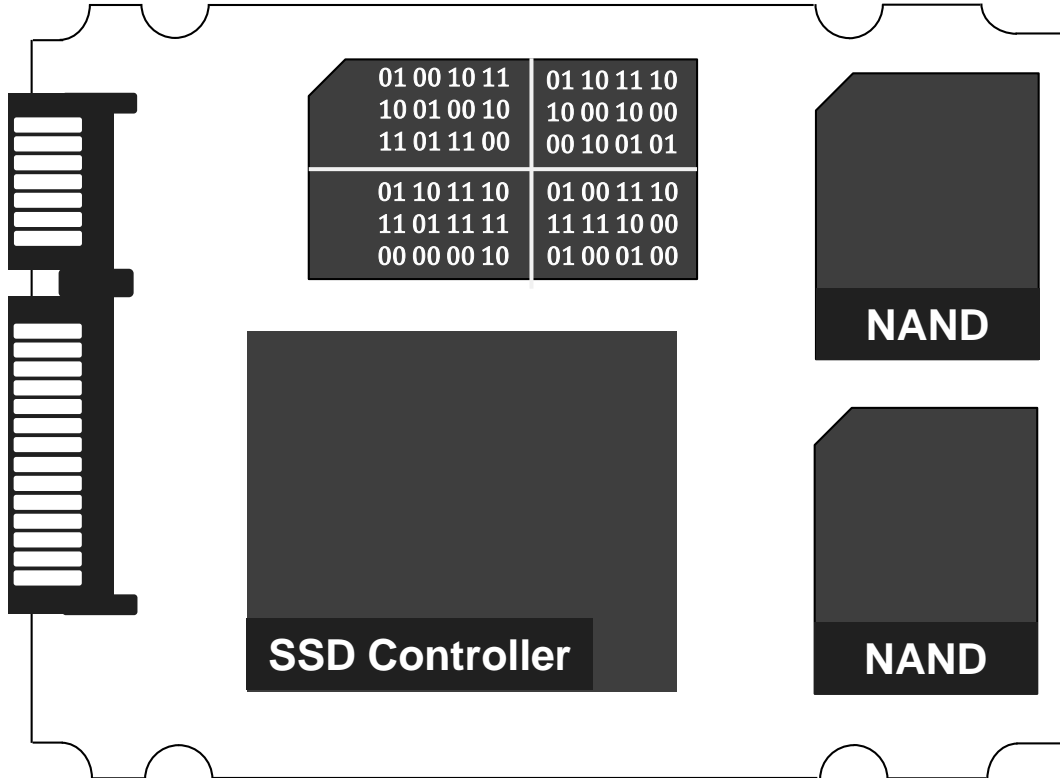
# DRAM-Less SSD Facilitates HDD Replacement

**Stanley Huang**  
**Director, Product Marketing**  
**Silicon Motion, Inc.**

# SATA SSD Trend: HDD Replacement



# Logic to Physical Table Swapping



**NAND** : DRAM

**1000** : 1

**128GB** : 1Gb

**256GB** : 2Gb

## Lower Performance and Longer Latency

Table swap and write back

## Higher WAI

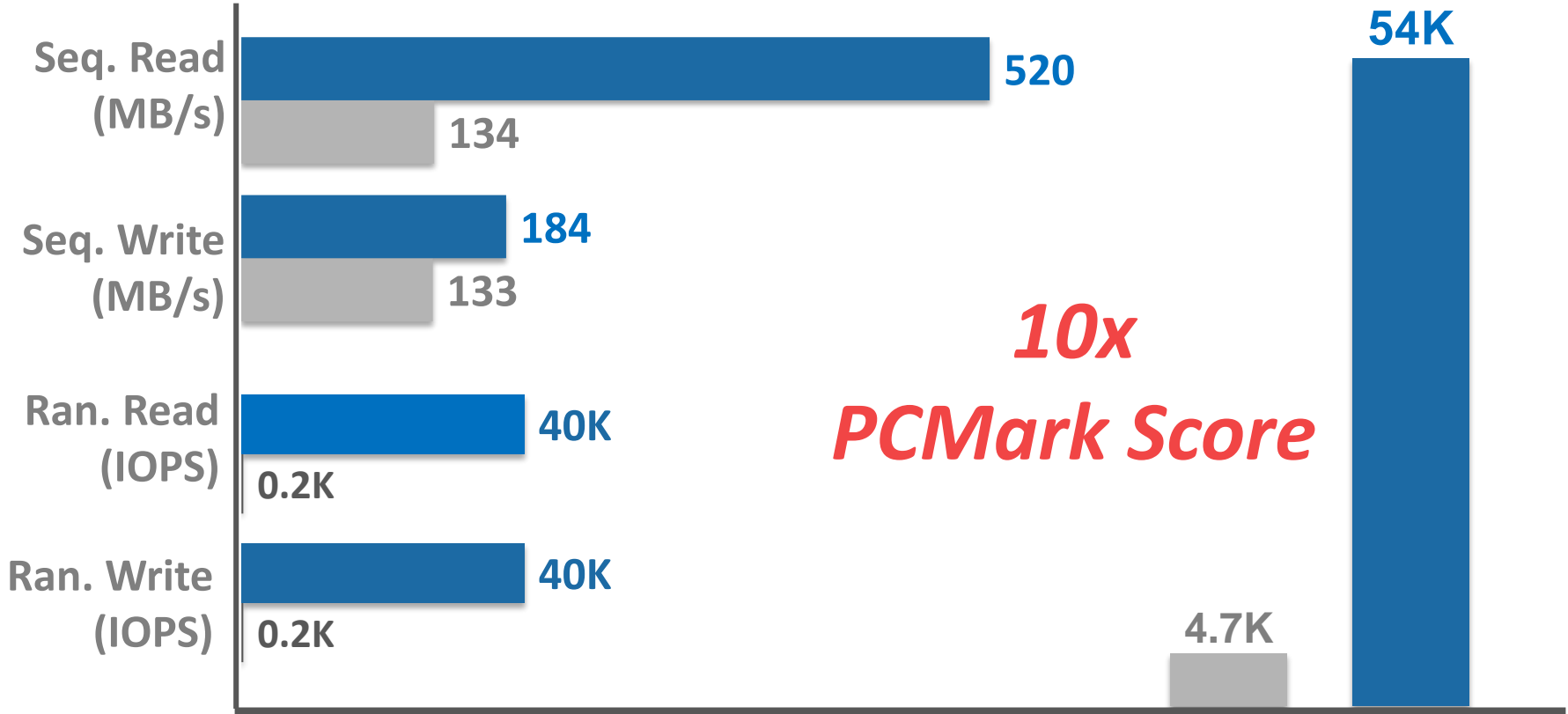
Save L2F map more frequently

## Program Fail Handling

No enough memory to buffer data to re-program



# DRAM-Less SSD vs. HDD



Source: SM2246XT + 128GB MLC vs. 7200 rpm HDD

# PC OEM Asking \$40 for 128GB SSD

320 GB



\$49<sup>40</sup>

WD Blue WD3200LPVX 320 GB 2.5" Internal Hard Drive - SATA - 5400 rpm - 8 MB ...

500 GB



\$51<sup>82</sup>

Seagate Momentus Thin ST500LT012 500 GB 2.5" Internal Hard Drive - SA ..

1 TB



\$63<sup>89</sup>

Western Digital WD10EURX 1TB OEM AV Hard Drive

1 TB

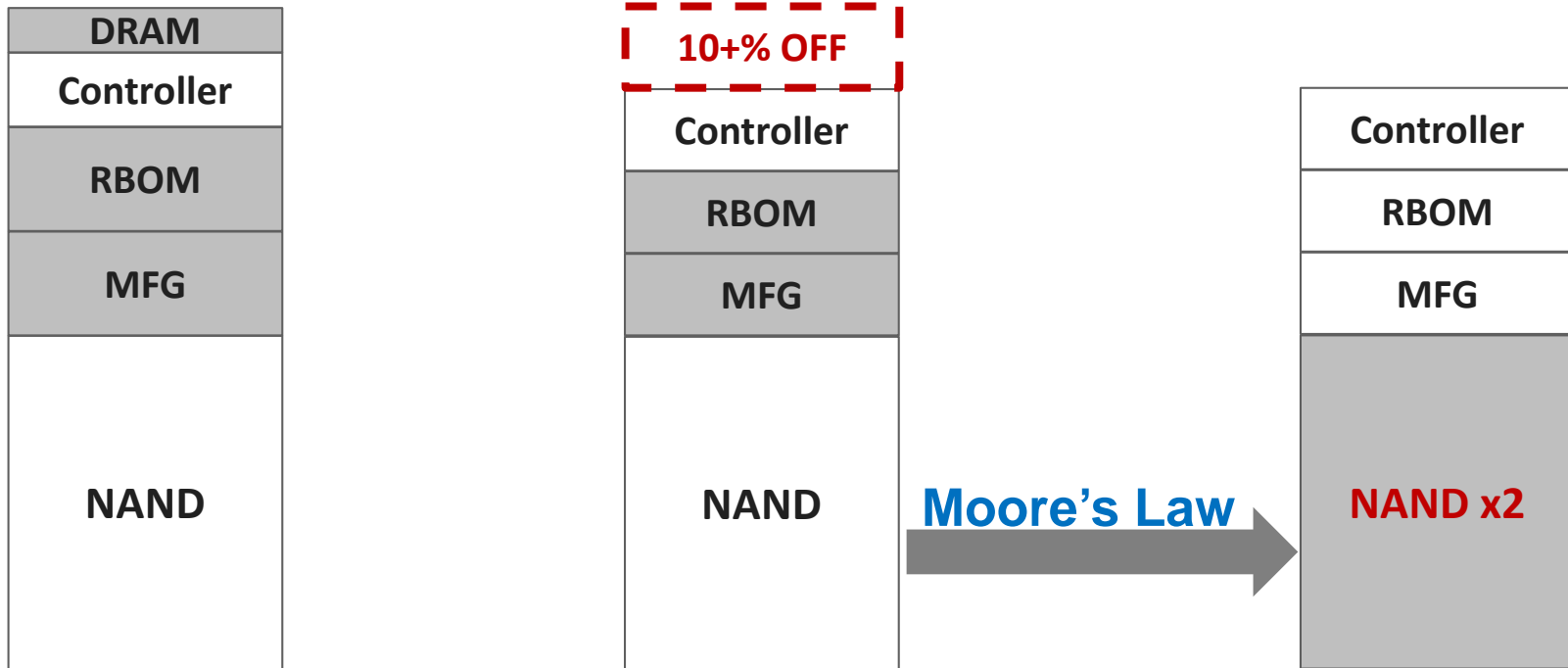


\$69<sup>82</sup>

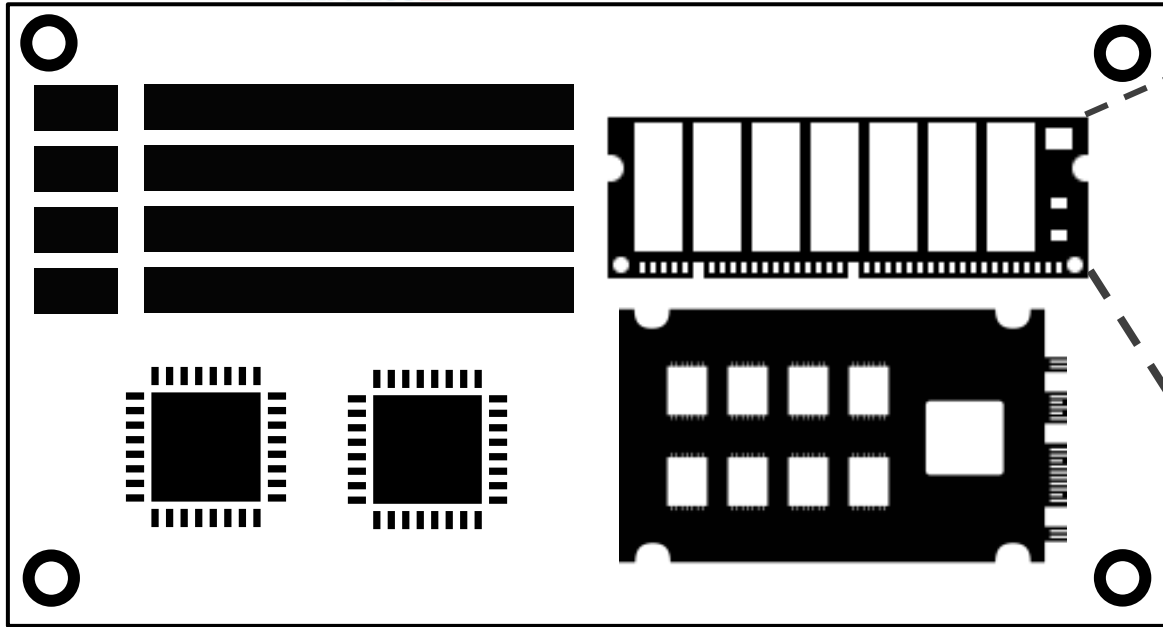
Seagate Momentus LP 1TB 2.5" Internal Laptop Hard Drive

Floor Price: ~\$35-40 for PC OEM

# BOM Cost Reduction



# Host Memory Buffer (HMB)



SSD's Exclusive Use







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**Ultra Slim/Detachable**

**Small FF**

**NVMe 1.2**

**Mem. Allocation**

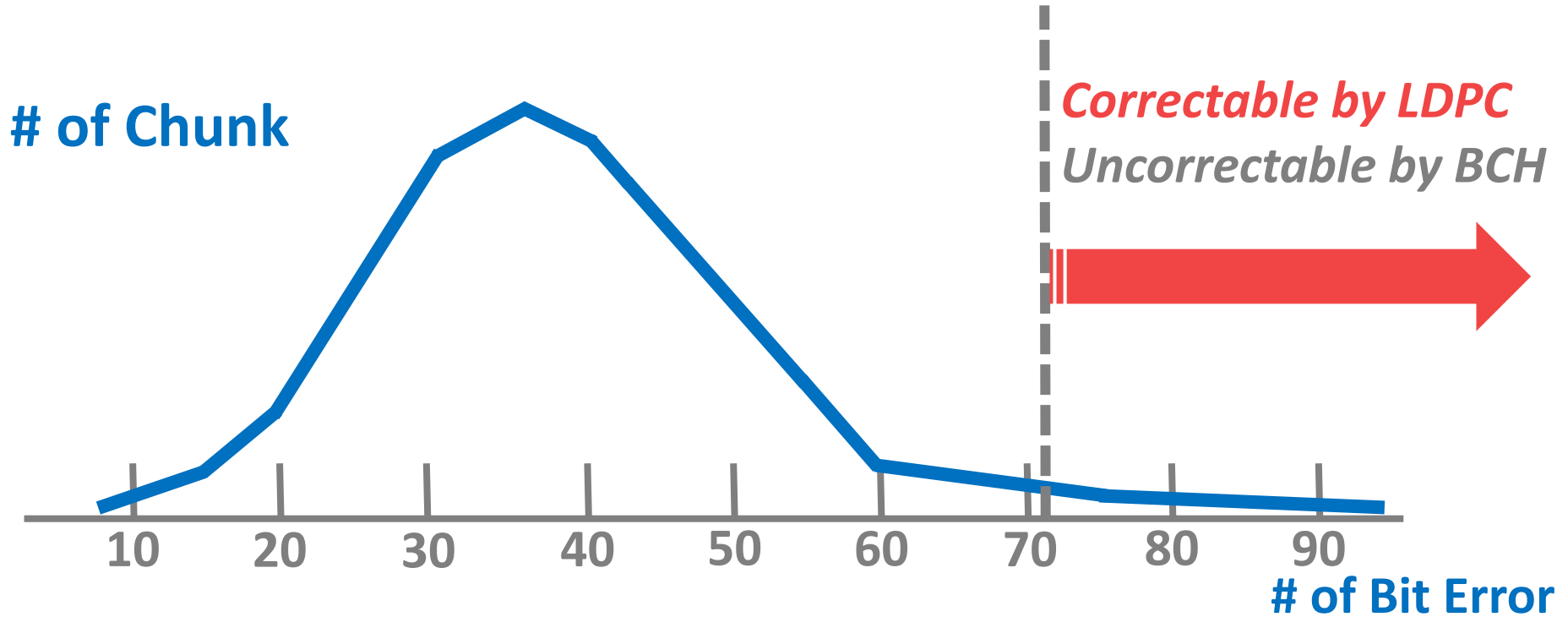
**Enterprise**

**Super High Perf.**

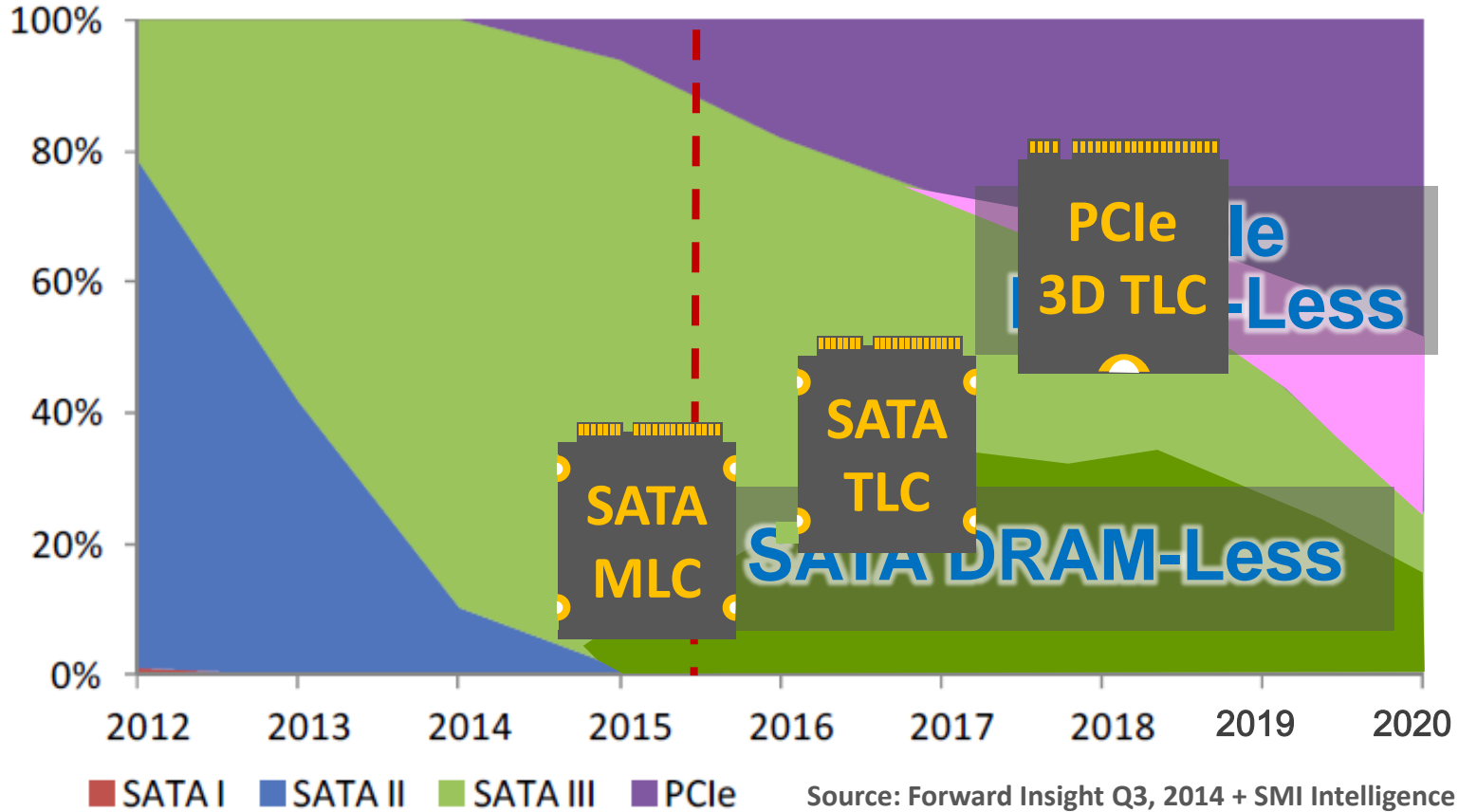
**Proprietary**

**CPU + Memory**

# LDPC Extends 3x TLC Life Expectancy



# DRAM-Less SSD Market Trend





# Summary

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**DRAM-Less Facilitates HDD Replacement**

**MLC → TLC, SATA & PCIe**

**Complete Product Portfolio by [Silicon Motion](#)**

# Visit us at the booth - 313



# THANK YOU!

#### **Disclaimer Notice**

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