ELPIS

High Performance Low Power Controller for Data Center SSDs

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New Architecture

High Performance

Low Power Consumption
More Performance

PCle® Gen.3 Random Performance
PM9A3 shows up to 3.6x times better Ran. Write than its previous generation PM983 with PCle® Gen.3 interface due to improved V6 NAND.
- For the case of Ran. Read, PM983 provides up to 48% better than PM983
- NAND characteristics affect random performances directly compared to seq. performances
  - V6 NAND speed is 33% faster than V4, PM983 is based on V4 NAND
Less Power Consumption

**Efficient Power Management Seq. Read**
PM9A3 provides up to 1.8x times better power efficiency than previous generation, PM983
- Even though PM9A3 is PCIe® Gen.4 based SSD, less power consumption with higher performance

**Efficient Power Management Seq. Write**
PM9A3 provides up to 1.6x times better power efficiency than previous generation
Hardware Acceleration

- Offloading FTL (Flash Translation Layer) operations
  - Address Translation
  - Flash Array Management
  - Buffer Management
[New Architecture – power efficiency]

Clock Management Unit / Physical Imp.

- Control root of clock-tree
- Control each IP by its own status
- Physical Implementation
  - Samsung Foundry’s 8nm process
  - Optimize CMU location
Portfolio

- Those SSDs are adopted ELPIS controller. Many data center customers are developing their servers using the SSDs.

- PM9A3 U.3
- PM9A3 U.2
- PM9A3 M.2