



Storage Interfaces and Their Effect on Platform Power and Performance

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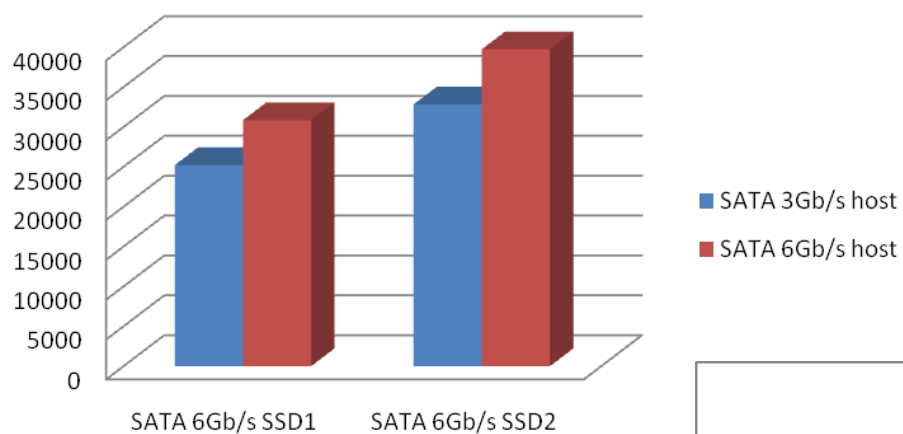
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Introduction

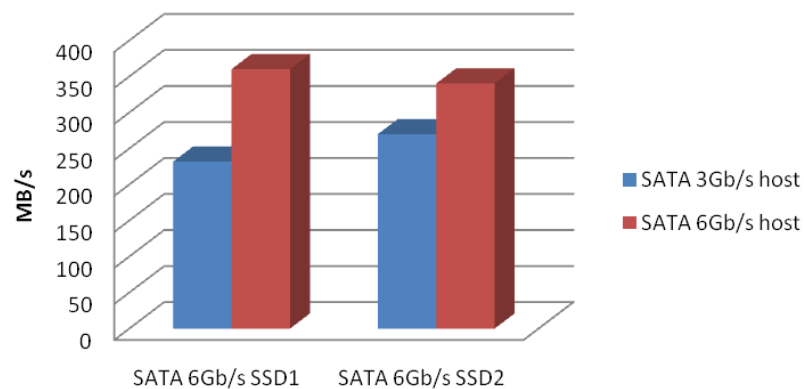
- SATA 6Gb/s promises faster storage bandwidth, but do SSDs deliver?
- What's the impact on power and battery life?

Performance

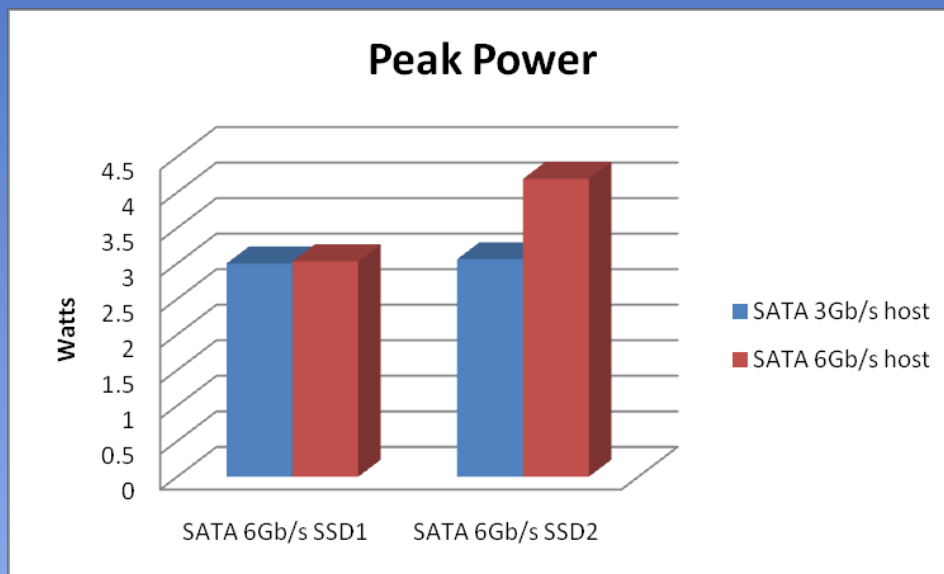
PCMark* Vantage HDD



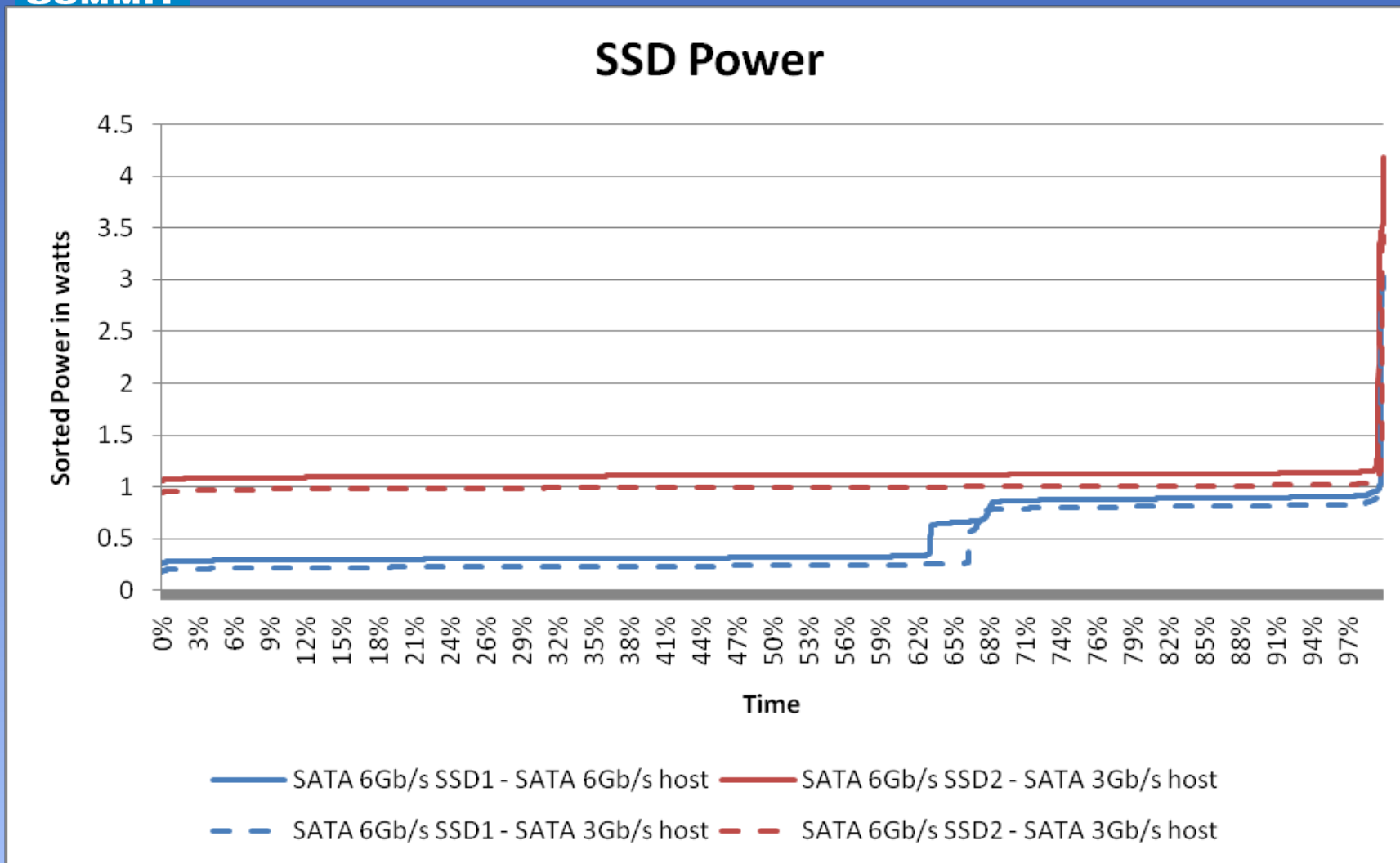
Sequential Reads



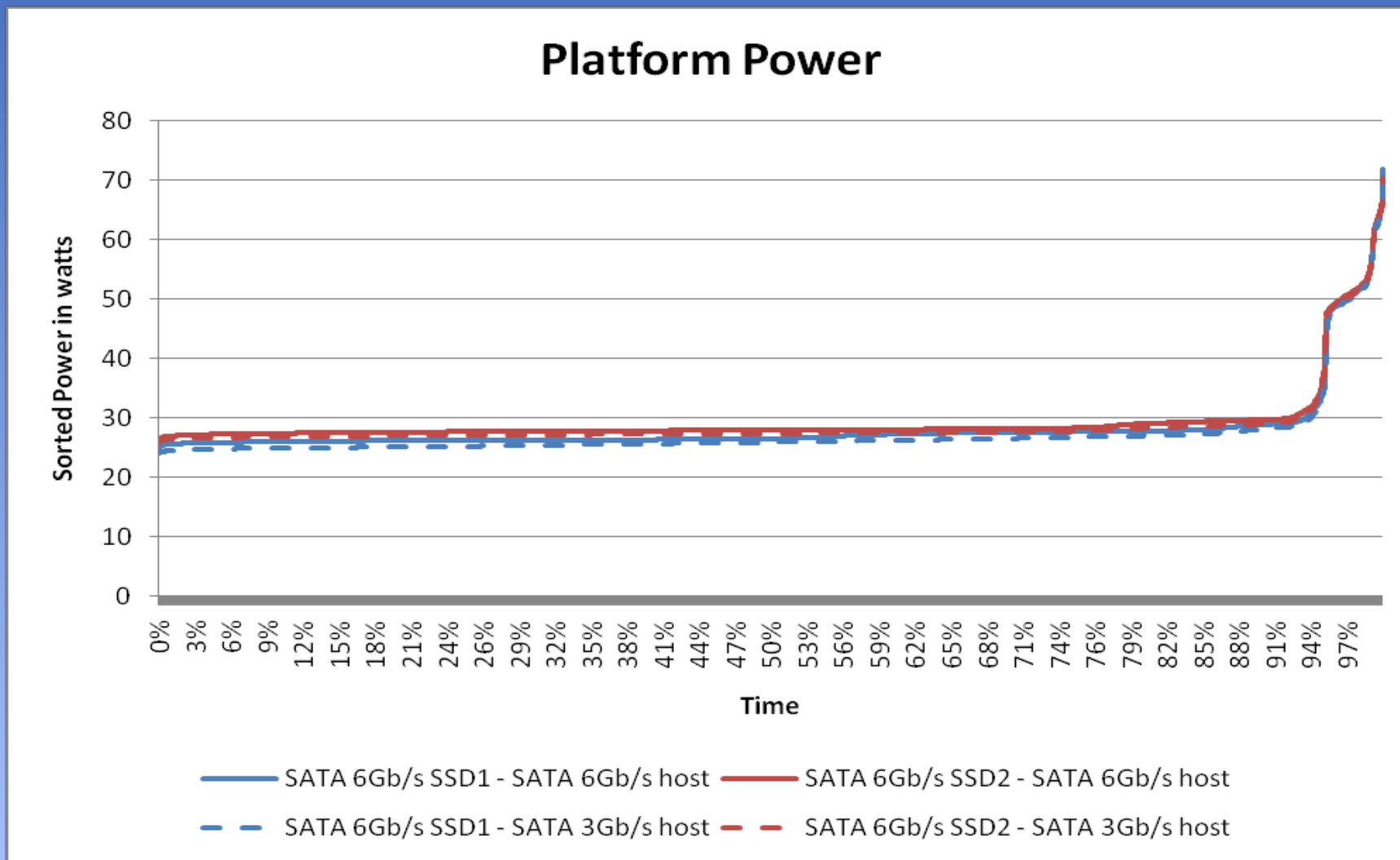
Device Power



Device Power



Platform Power



SATA Link Power Management

- SATA link can be in 3 states:
 - Active
 - Partial, exit latency <10us
 - Slumber, exit latency <10ms
- Link Power Management (LPM) allows either SATA device or host to request to shut off SATA link
 - HIPM – Host Initiated
 - DIPM – Device Initiated
- Due to lower exit latencies, SSDs can aggressively use DIPM to maximize use of slumber mode & minimize idle power

Summary

- SATA 6Gb/s allows increased SSD performance
- Active (peak) power is higher, but what matters is energy consumed (area under power curve)
- Energy consumed is still dominated by the low power states → optimizing this is key to increased battery life



Thank You!