Advancements in PC User Experience with Non-Volatile Memory

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PC Client User Experience

Responsive PC Performance
User Benefits

- **Responsive PC experience:** Get a responsive PC experience even with today's most demanding applications, faster boot/resume and shut down

- **Performance to do more:** Extra boost of raw power on demand for streaming or editing HD video, advanced photo editing or extreme gaming, and multi-cores for smooth, powerful multi-tasking

- **Accelerated Applications:** Maximize the performance for web browsers, media and productivity applications

Greater Mobility. Greater Experience.
User Benefits

- **All day battery life:** Now with all-day battery life and dynamic, responsive performance so you can do more on the go

- **Leading performance per watt:** Visual performance enabling more flexibility to differentiate and win in competitive markets

- **Anytime, anywhere experience:** Wireless connectivity to both the network/internet with support for AOAC and to devices & displays

PC Client Architecture

- The PC client architecture must continue to evolve to meet usage expectations

- Each sub-system within the architecture needs to improve in terms of performance (latency) and power consumption
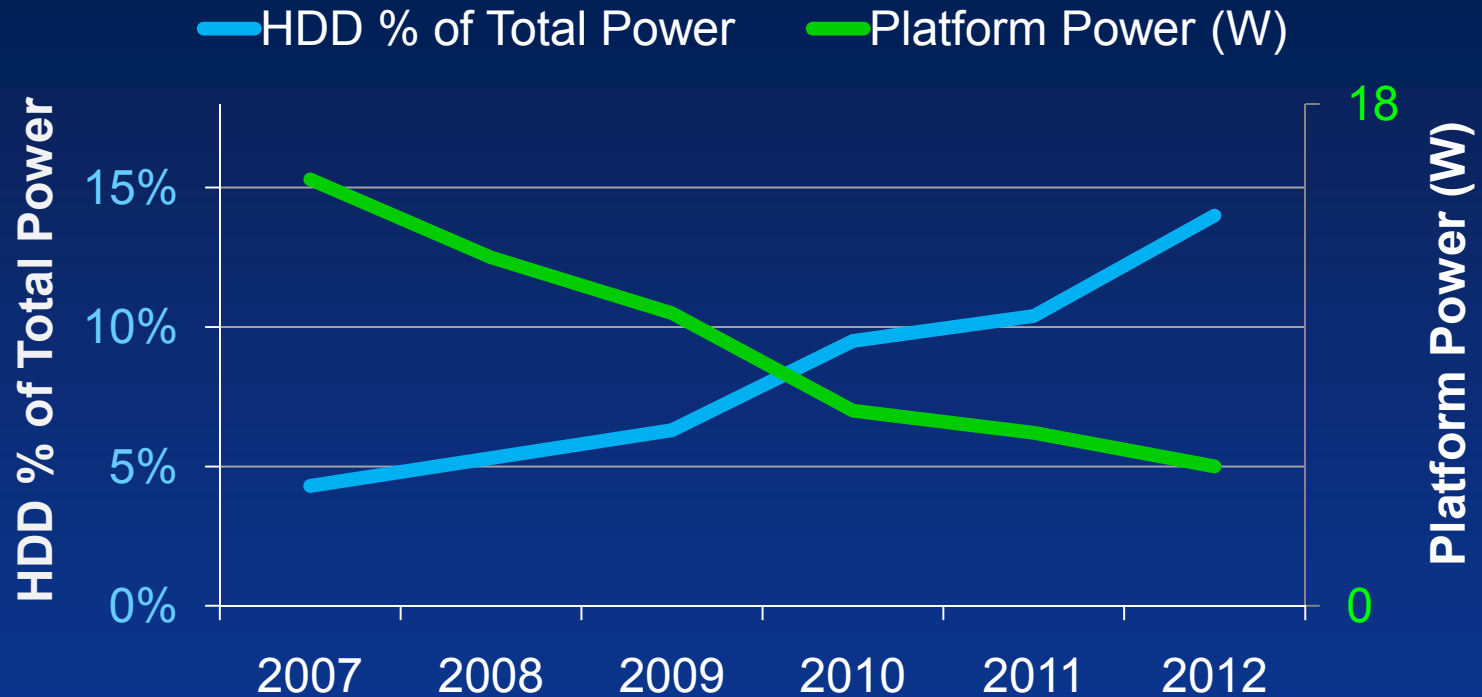
APU CPU + GPU
Cache

DRAM
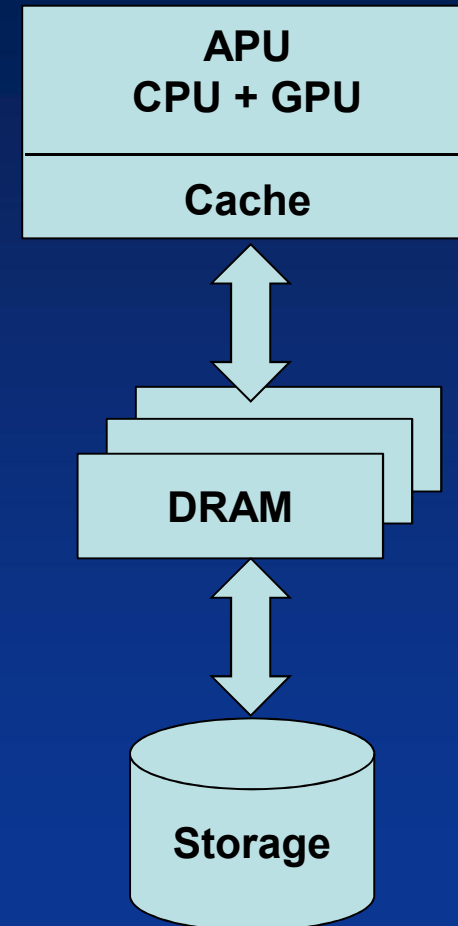
Storage

HDD Performance

- Rotating media (HDDs)
  - Continues to offer the lowest $/GB storage medium
  - Though there has been some performance improvements, it has not kept up w/ the rest of the system
  - Platform performance and responsiveness is impacted by not only the throughput but, in many cases, the latency

HDD Platform Power Contribution

As platform power have decreased with each platform generation, the % of HDD power contribution has increased

Opportunities

- A number of solutions are being developed within the industry that promise significant improvement in the storage sub-system
  - Solid State Drives (SATA or PCIe)
    - Primary storage, high performance, high $/GB
  - Flash modules
    - Flash cache to supplement the primary storage
  - Hybrid HDD
    - Flash cache embedded in HDD
- Each offers varying improved performance at corresponding price points
  - Opportunity for continued performance improvement with PCIe
  - Need for PCIe multi-lane form factor/connector definition
- Each has the opportunity to improve the power consumption of the storage sub-system
  - Performance has been the primary focus for these solutions, but power consumption improvements is also of value and should be a focus as well
- AMD is working with various vendors to develop all of these solutions to help meet the various market needs

Conclusion/Call-to-Action

- PC client architecture continues to enhance the PC user experience by providing a responsive performance while also enhancing mobility with all day battery life
    - The storage sub-system can contribute to the experience with improvements to the performance, latency & power consumption
- Work together to define multi-lane PCIe form factor / connector definition
- Pay attention to power consumption
    - Both active & standby power
    - Quickly becoming increasingly important

Thank you!

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