



HybriDIMM[™] Media Controller

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Memory Solution Space

- Cost effective 256GB-1TB+ capacities on the DRAM bus
 - Cost effective, High Bandwidth, Low latency
 - Use of Software drivers (no special HW protocol required)
- Architectural context that encompasses
 - Take advantage of large DRAM:NAND price ratio of ~50:1 per GB
 - Supports emerging memory technologies RRAM, PCM, MRAM, NRAM, etc
- Significant progress in standardization
 - Competitive solutions continue to be single sourced



DRAM

SCM - What is the ideal solution ?

NAND Economics

DRAM Performance

Architecture agnostic → using software drivers & accommodating emerging memories

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Cost effective performance improvements and latency reduction

ENCY

LAT

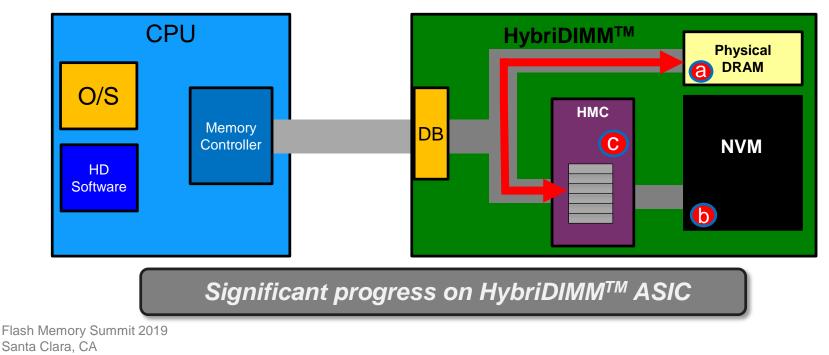
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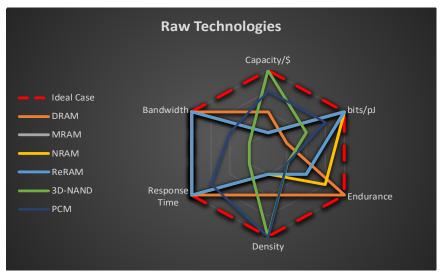
HybriDIMM[™] solution

- Memory and Storage on one physical DIMM
 - Three HW elements: (a) DRAM, (b) NVM, and (c) HybriDIMM[™] Media Controller (HMC)

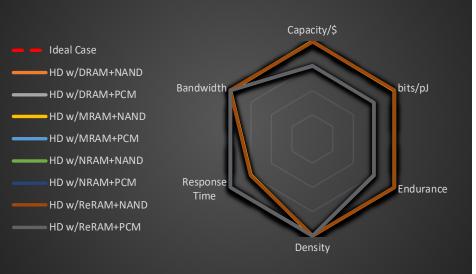




SCM: HybriDIMM[™] Architectural Advantages



With their own idiosyncrasies & vol. ramps



HybriDIMM

HybriDIMM[™] provides the architectural context to use multiple memory technologies as they mature



HybriDIMM[™] Momentum Growing

- Summary
 - 1. Cost effective \rightarrow takes advantage of growing DRAM:NAND price ratio
 - 2. Standardization \rightarrow not a single sourced solution
 - 3. Software drivers \rightarrow does not require special HW protocol



Working prototype !!



Thank You!

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