Why Do SSDs Mimic Hard Drive Form Factors?

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3.5” HDD FF

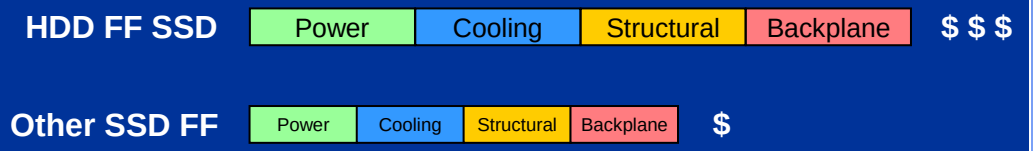
2.5” HDD FF

1.8” HDD FF

Datacenter

- Its easier for system designers to accept that which they know
- Some SSDs even formatted drives to enterprise HDD capacities like 73, 146 and 300GB
- High-end SSDs are great for tier 0 applications
- Deployed in standard HDD enclosures
  - Designed for power, cooling, and rotational vibration of HDDs
  - Just how much smaller, quieter and less expensive could a drive enclosure be?

Comparative Cost of Drive Enclosure

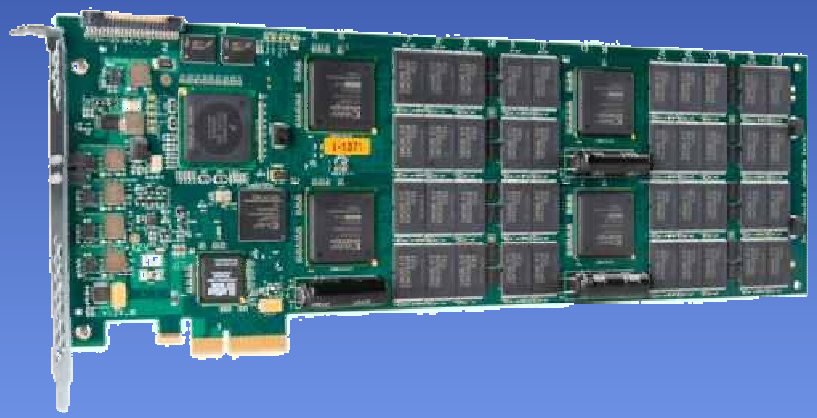


Food For Thought…

- Higher end storage applications need local system acceleration
  - Not all apps need main storage
- Many storage applications can benefit from a smaller X x Y footprint, sacrificing Z-axis height
  - Advantages in volumetric density, package size, cooling
  - Purpose built – Why pay for what you don't need?
- SSDs have much lower failure rate than HDD
  - Some applications can be fixed, non-removable
  - Savings in connector and housing costs
  - Increased ruggedness for industrial apps
- SSDs in HDD FF are one size fits all…there are options

PCI Express

- Lower latency and higher bandwidth
- Direct path between host and storage vs. HDD interfaces
  - Eliminate HDD interface contention
- Larger surface area for more capacity and performance than HDD form factor
- Well suited as a system accelerator or local file cache

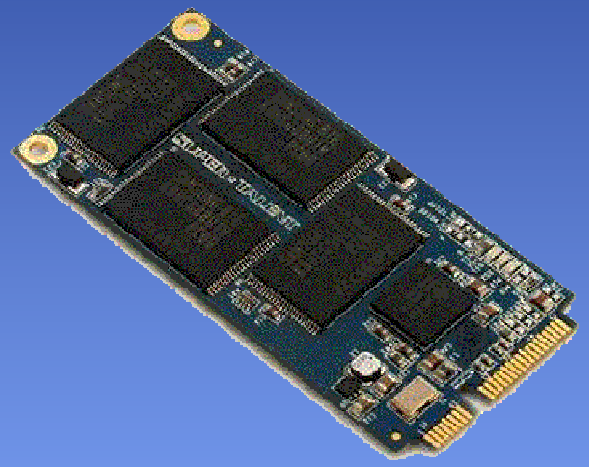


Comparison of Interface Speeds

PCIe 2.0 x8	PCIe 2.0 x4	SAS	FC	SATA
40 Gb	20 Gb	6 Gb	4 Gb	3 Gb

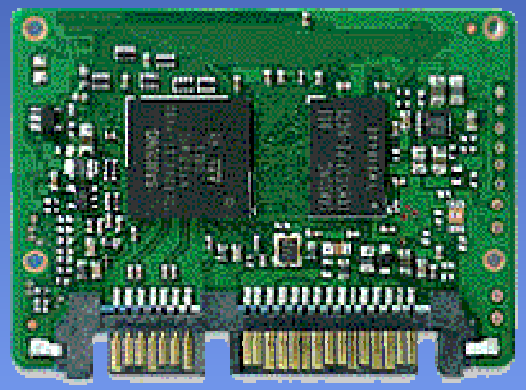
SATA Mini Card

- PCIe mini card form factor with SATA interface
- Ultra mobile PC apps, Netbooks, embedded, network infrastructure
- Capacity to 64GB
- Performance: 8 channel, 100-180 MB/s
- Mechanical dimensions
  - 50.95 x 30 x 3.8mm



Slim Light SSD

- SATA SSD 70% smaller than 2.5” SSD
- Capacities to 32GB
- UMPC, embedded
- 54mm x 39mm x 4mm
- MicroSATA connector
- Performance: 2-4 channel, 50-90 MB/s

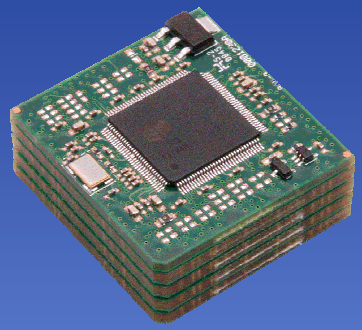


CFast

- Compact Flash (CF) form factor with 3Gb SATA interface
- Compatibility with newer chipsets migrating from IDE to SATA
- Capacities to 32GB
- Performance: 2-4 channel, 50-100 MB/s
- Embedded apps, handheld devices

Cube (Stacked) SSD

- SATA (3Gb) SSD with reduced length / width dimensions
  - Up to 86% smaller than 2.5” SSD
- Highest volumetric density available today, capacities to 256GB
- 4-channel performance, 100 MB/s
- Aggregate for performance / capacity
- Embedded apps: industrial and enterprise (Storage Bridge Bay)
- Solder down or removable MicroSATA



Summary

- HDD FF SSD have their place
- Other FF SSDs have size, density, power, cooling and other advantages
- Aggregation of smaller FF SSD can achieve performance and capacity advantages
- Guidance: choose the right SSD for the job

DVR w/ HDD Form Factor SSD

DVR w/ Other Form Factor SSD