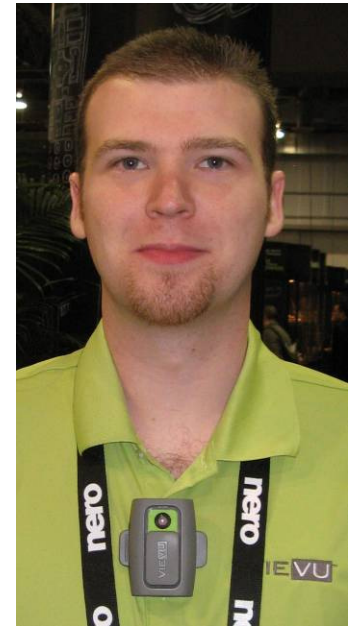




Storage at Storage Visions, the CES and ICCE Conference



Tom Coughlin
Coughlin Associates



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SSS Demonstration (SV09)



Fish Tank High Performance PC

- Hardcore Computer from Minnesota
- Everything is overclocked
- Computer is emmersed in fluid
- Shown in Samsung booth at Storage Visions



Hard Disk Drives



Fujitsu



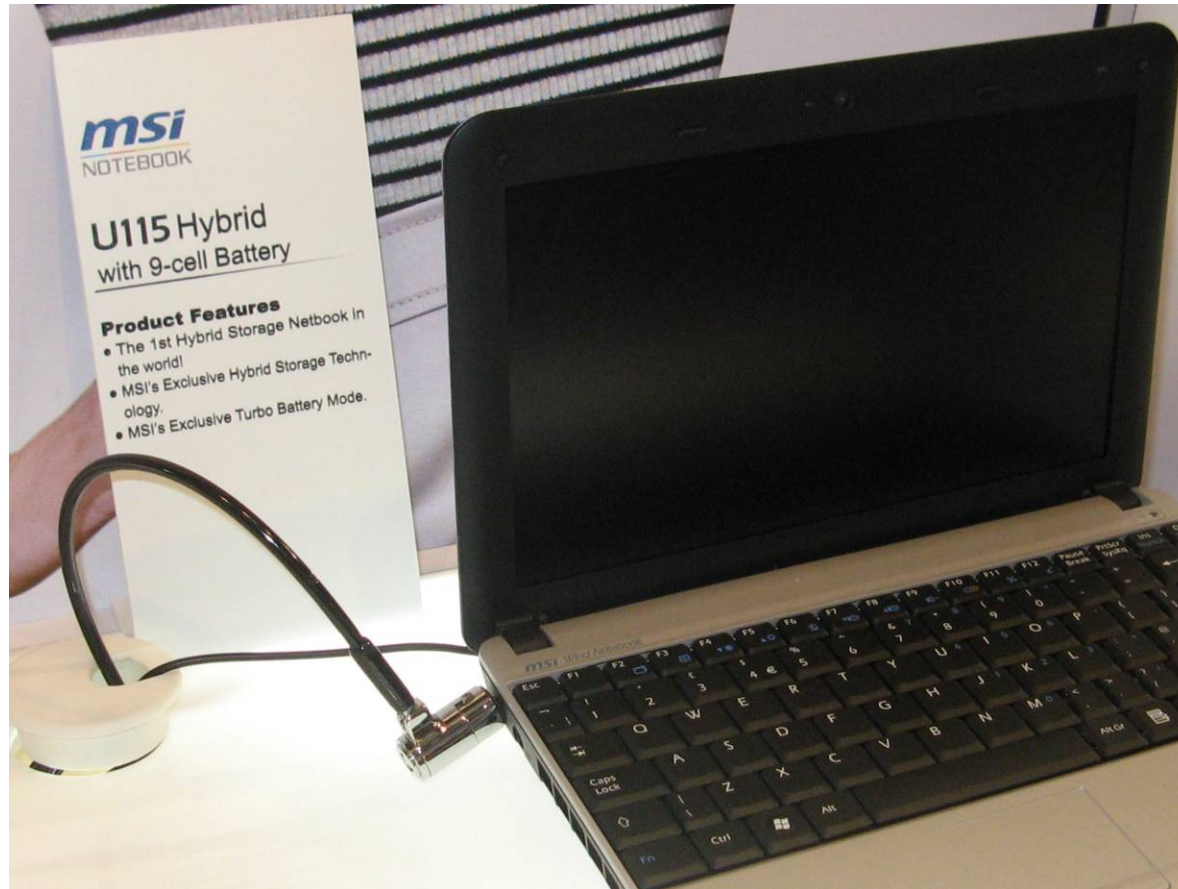
Seagate



Toshiba



Hybrid Netbook—Flash SSD and HDD

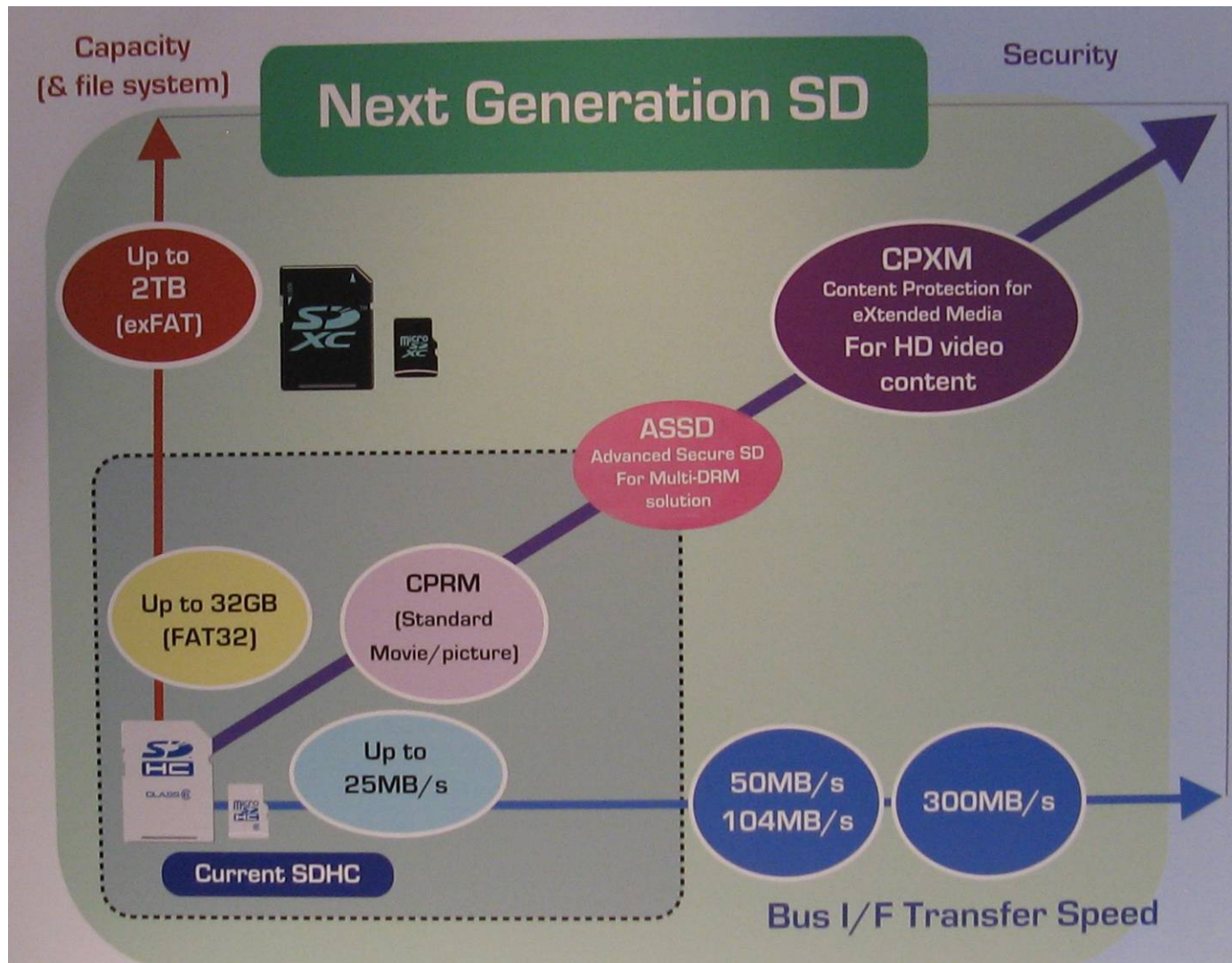


SanDisk Flash Physical Distribution



- Slot Music and Slot Radio
- Slot Music
 - \$99 buys player and 1,000 Billboard songs in various genres
 - \$39 buys added micro-SD cards with 1,000 new songs from a genre or different genre

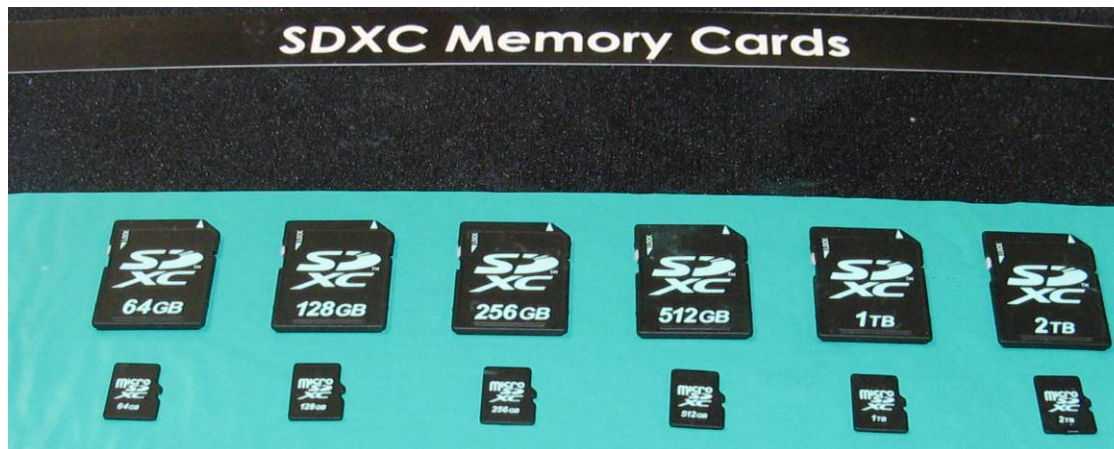
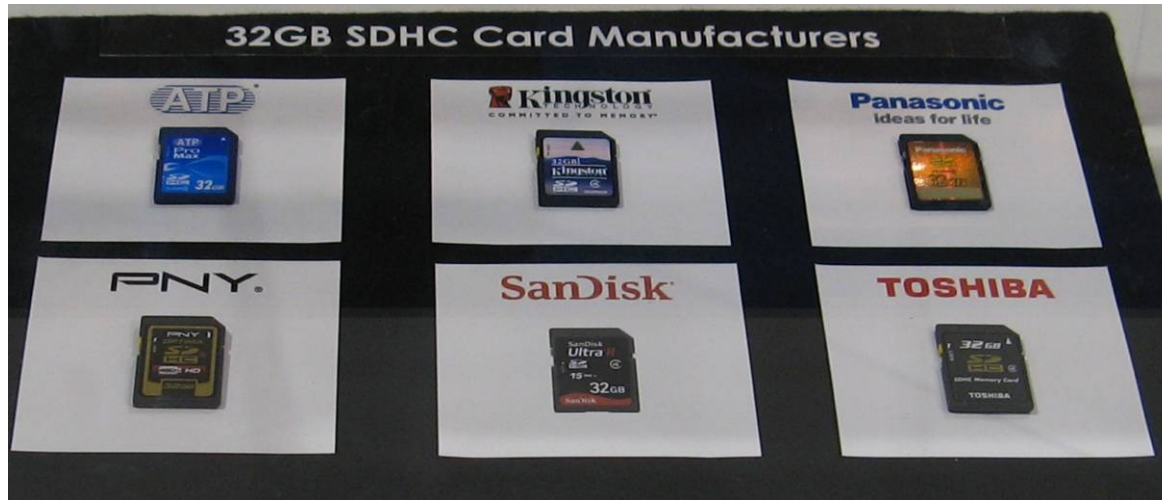
SD Card Roadmap



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High Capacity SD Cards





EarthDrive
2008 EARTH DRIVE

PLA has Latin Roots comes from natural plant instead of refined petroleum resources. PLA is known as "green plastic". The growing plants themselves absorb carbon dioxide, several processes are in place to ensure that the overall carbon footprint of PLA is as low as possible. PLA can be made from corn, wheat and other crops. PLA is a biodegradable plastic that can be used in a wide range of applications, from food packaging to automotive parts.

The Life Cycle of Biodegradable PLA Material

Feed → Pre-polymerization → PLA polymerization → PLA resin

The Manufacturing Process of Sustainable Biodegradable PLA Resins

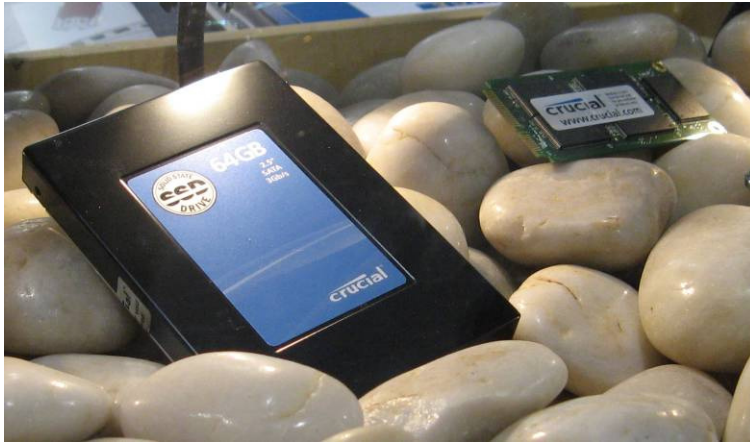
Pre-polymerization → PLA polymerization → PLA resin

EarthDrive
2008 EARTH DRIVE



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Solid State Drives



Lexar



Toshiba



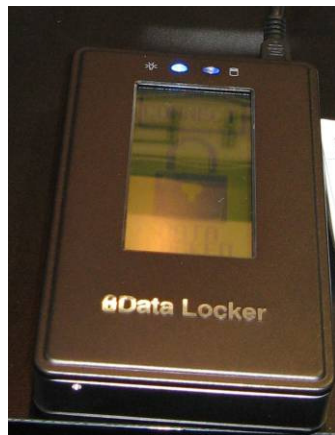
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External Storage and Backup



Clickfree Backup



Wireless USB (100 MBps within 10 feet)



HP Media Server, V2



iVDR external storage



Any storage device becomes networked storage

Optical Disk Storage 1

Developments in Blu-ray Package Media
Blu-ray Developed by Panasonic, Sony, Philips, Fox, Disney ...

Blu-ray Disc

First BonusView
Blu-ray BonusView Player (Profile 1.1) 2007

First BD-LIVE
Blu-ray BD-LIVE Player (Profile 2.0) 2008

BD-LIVE Concept 2008

Best Picture Quality
Fantastic 4 Silver Surfer

Best Concept
Alien vs Predator

Best Interactive
Pirates/Caribbean III

Best Blu-ray Title
Pirates/Caribbean II
The Hollywood Reporter

Best CE Company
Blu-ray Development
The Hollywood Reporter

BD+ Copy Protection 2007

Direct Digital Encode 2007

BD-JAVA Interactive 2006

AVC (MPEG4 HP) Encoding 2006

Blu-ray Player (Profile 1.0) 2006

Format Launch

Panasonic Blu-ray R&D

High Value Added Products

- Slim Drive
- HD Home Theater
- AVC HD
- Pro Systems
- Mobile

Key Component OEM Products

- Media
- Hi Drive
- Devices

Infrastructure

- Disc manufacturing spin coat methods
- MPEG-4 AVC encoder
- Blu-ray Java authoring
- Content protection

Panasonic ideas for life

Optical Disk Storage 2



Maxell Writable
Blu-ray Media



Ritek Writable
Blu-ray Media

System Concept and Parameters (2)

4GOD

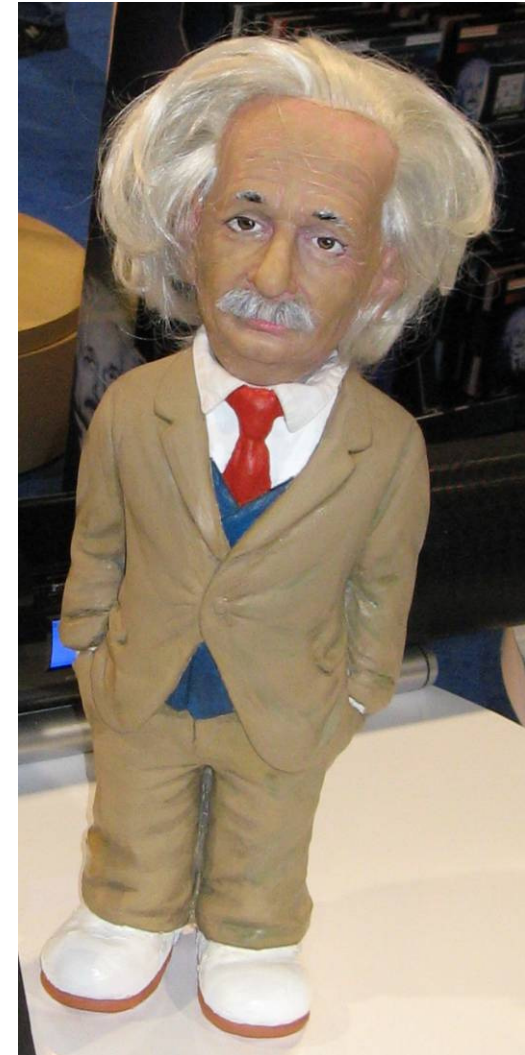
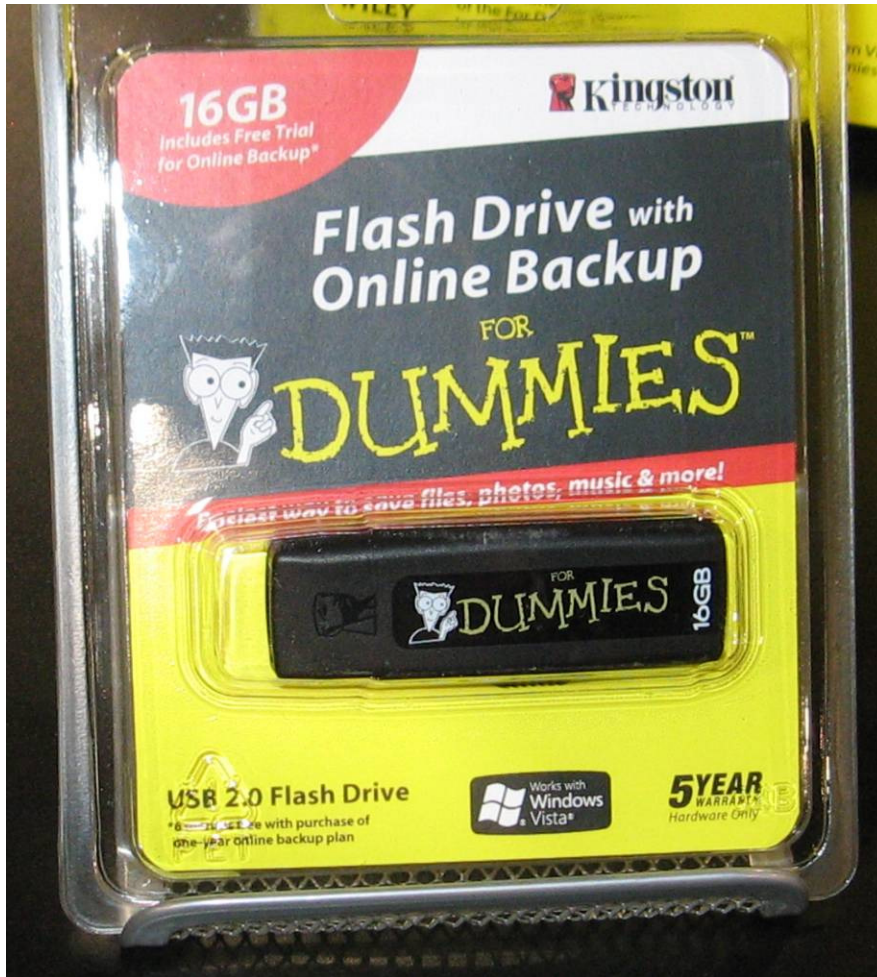
- Single-layer parameters:

	Blu-ray Disc (BD)	4 th -gen. optical disc
Disc diameter [cm]	12	12 3
Storage capacity [GB] (single layer)	25	100 5
Storage density [Gbit/inch ²]	18	70
Min. mark length [nm]	150	~50
Track pitch [nm]	320	< 280
Laser wavelength [nm]	405	405
Spot Ø on data layer [nm]	286	286/305
Numerical aperture (NA)	0.85	0.85/0.8
Sampling speed [m/s]	4.92/7.38	2...8
Useful bit rate [Mbit/s]	36/54	20... 100
Channel data rate [Mbit/s]	66	t.b.d.
Channel : useful data rates	1.835:1	<≈ BD

Jan. 2009 | 4th-Generation Optical Disc – D. Hepper et al. THOMSON images & beyond

100 GB Blu-ray Disc with SuperRENS

Storage for Dummies



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