Speaker

Tom Coughlin - President of Coughlin Associates (www.tomcoughlin.com), a market analysis and consulting company focused on storage technology used in a variety of areas, including consumer electronics. Tom also runs the Storage Visions conference, held each year just before CES in Las Vegas, and also the Creative Storage conference. Tom is also a past Chairman of the IEEE CES Santa Clara Valley chapter, and is currently on the chapter's executive team.
New Views at the 2017 CES and ICCE Conference

Tom Coughlin
Coughlin Associates
General Observations

• Bigger storage companies were showing their products primarily in hotel suites
• But a number of start-up external to cloud companies in the Sands Expo area
• Bigger flash storage devices on display in 2017
• As always, lots of odd things to see in the smaller booths—from the silly to the sublime
• ICCE Future Directions—some storage and memory insights
Seagate Technology

- 5 TB 12-mm high 2.5-inch HDD
- 2 TB 7-mm high 2.5-inch HDD
- Thunderbolt 3 LaCie products
- SMR Archive Drive
- Amazon and DJI partnerships
Western Digital

- Now includes SanDisk as well as HGST
- NVMe NAND flash drives
- High performance USB-SSD speeds (420 MB/s)
- MyCloud NAS Storage
- SSD and HDD Personal Storage (Green, Blue and Black Drives)
- Home entertainment and AV storage
Toshiba

• Toshiba hotel suite was showing HDD and SSD products (client as well as enterprise)

• Small BGA 512 GB SSD for client computers
Samsung

- EVO 3D SSDs (up to 4 TB)
- SSD External Storage
- Type-C USBs
- Enterprise and client SSDs
- Tubular Computer
Game Storage

- WD 512 GB WD Black PCIe Gen3 X4 NVMe SSD
- Seagate Game Storage HDDs
- Toshiba OCZ Game PCIe drive
Large Flash Storage

- Kingston 2 TB USB Drive
- SanDisk 1 TB SD Card
- Marvell SSD Controller
Emerging Storage/Memory Technology

- Intel introduced an M.2 Optane product during the CES that will ship in Q2 2017.
- Micron said that they will ship an Optane product (perhaps M.2 as well) in Q2 2017.
- Global Foundries had a hospitality suite including embedded MRAM.

Introducing 22FDX® – eMRAM

- 1,000x faster write speeds
- 1,000x higher endurance
- Scalable beyond 22nm; planned for both FinFET and FDX platforms
- Versatile – utilize for both code storage and working data
- Accelerates real-time vision processing and 3D mapping updates

The Right Memory for Battery powered IoT, ADAS and Vision Processing.
Personal Cloud Storage

- Lots of start-up companies offering various on-line and local/on-line storage
- Lima, Moore, Boxdrive
- Seagate, WD, others
Storage for Creative work

- Seagate Creative Display
- QNAP Video Demonstration
- 360 Camera at Intel Booth
Autonomous Cars = Big Data

- Google autonomous car generates about 1 GB/sec. Avg. US driver drives 600 hr/year. This would generate 2 PB/car/year.
- The number of cars worldwide will surpass 1 billion
- So the potential size of data generated by autonomous cars is huge
- Most of the resulting long term storage is in the cloud, which also does the bulk of analytics
Memory Trends in Automobiles

• The electric/electronic share of value added to a state-of-the-art vehicle is already at 40 percent for traditional, internal combustion engine cars and jumps as high as 75 percent for electric or hybrid electric vehicles.

• The total available market value for semiconductor memories in automotive applications is expected to be well above the overall CAGR for the total memory semiconductor market.

• Automotives are about 5% of the memory market now but could grow to 10% (2016 Micron Press Release)

2012 article from Micron in Embedded Computer Design
DIY Projects

• There were a lot of DIY projects at the 2017 CES, beyond 3D printing (now with carbon fibers or bio printing)

• Bio-Printing (SCU spin-off)

• PicoBrewing (at least 3 companies at the show)
Odds & Ends

- There were several Kickstarter funded companies—even a flyer on them
- Augmented reality using IR to see inside walls
- eINK display backpack
- ARM Display SoC on plastic substrate
- Think & Learn Smart Cycle
- Areal balloon camera/display
- Water bottle, speaker & charger
- Fold-up drone