2006 Consumer Electronics Show Report

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Introduction

- 39th Consumer Electronics Show, held in Las Vegas from January 5 – 8.
- 2,500 exhibitors and 145,000 visitors.
- Takes entire Las Vegas convention center, Sands Convention Center, Hilton Exhibition Center and additional hotels.
- This show was the most positive show I have attended since 9-11.
- Highly likely that 2006-2008 will be excellent years for consumer electronics manufacturers.

Welcome to CES

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Always fine dining at the Las Vegas Convention Center.

Celebrities

Celebrity guest musicians at the Worldspace Radio booth

Larry Flynt with his entourage.

Samsung

- Samsung had a booth and product display that demonstrated their desire to push Sony out of the top consumer electronics position.
- Large display of cell phones with outstanding styling and capabilities.
- Samsung's YM-P1 media player will be a serious competitor for the iPod. Well engineered product that plays both audio and video. Only a vertically integrated electronics company could produce a product like this.

Centrino Notebook

Audio/Video player with 16:9 video screen and 6 hours video play time!

Cell phone with 16:9 video screen

Panasonic

- Panasonic had the most prime show spot with a very impressive product display.
- Some product of interest were:
  - World's largest plasma TV, 103"
  - High speed networking over residential power lines.
  - Blue Ray high definition DVD players.
  - Satellite car and home radios
  - IP Television
  - Rugged laptops for industrial/education
  - Cell phones with MPEG 4 video

Microsoft

- XBOX 360 was hit of show. Games shown on HD displays demonstrated the life like rendering capabilities. This product will be a driver in the sales of plasma and LCD TV's.
- Vista on display but XBOX stole its thunder

XBOX and Plasma TV

Vista and Plasma TV

Intel

- Centrino, Centrino Duo and Viiv were highly visible technologies being promoted.
- Could not find anything demonstrating performance benefits of dual CPU cores.

Average Centrino notebooks have ~1.8GHz CPU, 533 MHz DDR2 memory, 802.11g (soon n) wireless and 5.1 channel audio

Intel (Continued)

- Intel Viiv, message lost on crowd
- People looking at back of Viiv PC's for additional connectors or other visual features of Viiv promotion.
- Many booth visitors perceived Viiv as marketing BS.

Back of Viiv PC

Lucky Goldstar (LG)

- LG appears to be second to Samsung in product offerings and design capabilities.
- Offers same massive product line as LG.
- Had interesting notebook with a new and previously unknown wireless format called EV-DO

Antenna on right side of laptop is for EV-DO

Using EV-DO one can browse the Internet at high speeds. EV-DO is much more advanced than GPRS and EDGE and can be easily be accessed even in confined spaces like subway, etc.

Lucky Goldstar (continued)

Hmm……

Chart showing LG's vision of the future of the connected home

ATI

- ATI, met with mobile product line manager. All mobile products have moved to PCI Express, AGP development stopped 2 years ago.
- ATI telling customers who still need AGP to use AGP bridge chip to PCI Express.

- Recommends Mobility X1300 for low power applications. Has TDP as low as 7 watts.
- Older chips will not support Vista video requirements.

nVidia

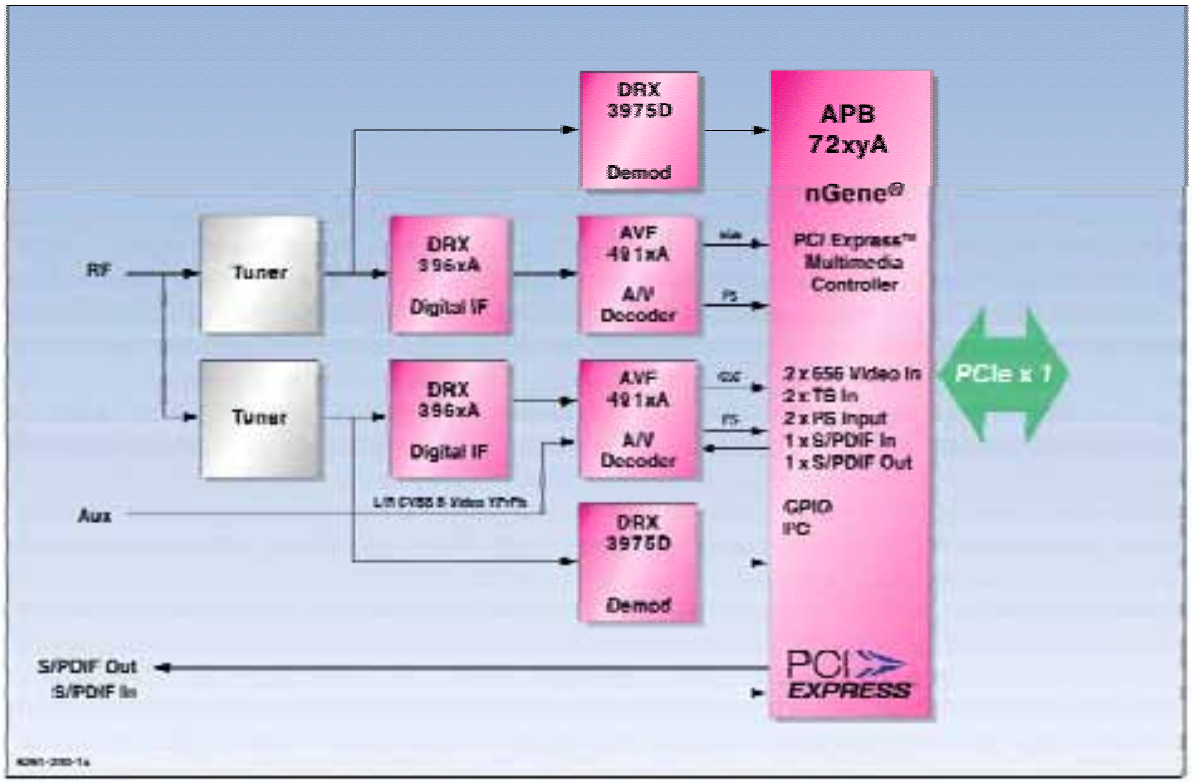
- Only older desktop products still available in AGP, all mobile product moved to PCI Express.
- Recommends GeForce Go 7400 and 7300 GPUs for low power applications.
- Deliver high definition video and graphics features. Can get longer battery life through their PowerMizer power management.

Marvell

- Marvell with low power IEEE 802.11n interface chip.
- IEEE 802.11n is wireless standard that has a maximum throughput of 540 Mbits/Sec. Friends in the business tell me that this data rate is not possible in practical use. 100 Mbits/Sec is more practical.
- Demo of chip only available with special invitation.
- For Transmeta no impact, only need to provide mini PCI slot.

Micronas

- Micronas with HD decoder solutions, requires PCI Express. Single card with dual HD tuner.
- Excellent solution for HD media center product.



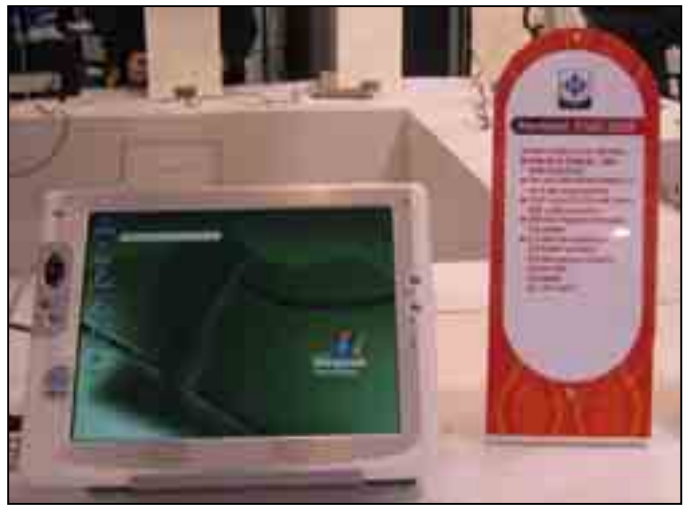
Amoi

- Only displayed was their Centrino and Centrino Duo products, otherwise low profile at show.

Micro Star International (MSI)

- Showed their “nock off’s” of many popular products.

Clone of Sharp MP30



Clone Tablet Computer

Samsung Media Player clone

Freescale (formerly Motorola)

- Freescale with ZigBee radio interface devices.
- ZigBee is targeted as a replacement for infrared and wired remote controls. Key benefits are extended battery life over current wireless standards, mesh and star network topologies, cost effectiveness, and no line of sight requirements. Developed by the ZigBee Alliance (an organization of semiconductor manufacturers, technology providers, and OEM's).
- ZigBee will provide an industry wide standard method for controlling consumer electronics products. This will greatly simplify using PC's to control things like TV's and DVD players.

Toshiba

- One of the few companies showing thin and light notebooks.
- Toshiba continues to be a technology company first (semiconductors, displays, etc) and a product company second.

Large screen notebook

Thin and light notebook

Thin and light notebook

Toshiba (continued)

Large screen notebook with High Definition DVD Drive playing a HD movie.

Toshiba's SED technology which is a rival for Plasma display technology. SED is much lower power than Plasma and does not have the half life problem. Toshiba is a leader in SED development. Did not see the demo due to the extremely long line to get in.

Sony

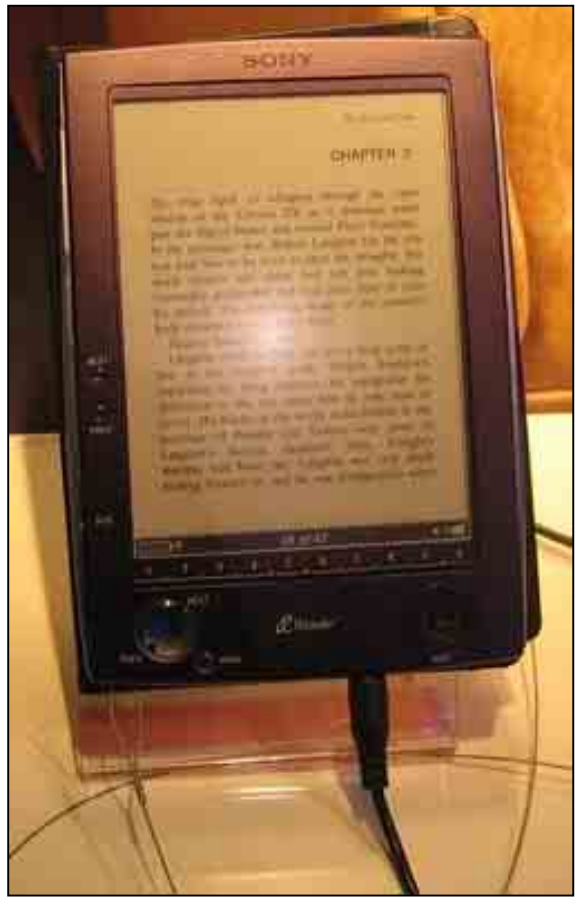
- Sony showed the Playstation 3 mockups and taped HD video of the Playstation 3 running games.
- PSP was the only hand held game console showed at CES. Huge interest in PSP.
- Some companies showed PSP being used as console for other applications, i.e.: wireless controller for a media server.

Playstation 3 demo video

Playstation 3 mockup in glass case

Sony (continued)

Sony Vaio notebook with the same old feature set as everyone else.



Sony eBook viewer

(not much for styling)

No-Name Media Players

Small media players with impressive codec and DRM support. All that is needed is someone with a back end service and DRM management.

Novelty Products 1

iPoop toilet paper holder

Pepper Pad TV remote control. Looks suspiciously like a previously failed Web pad product.

Novelty Products 2

Honda robot, actually worked and had very impressive motion and dexterity

Mini LCD projector, note quarter in lower left corner of picture.

Novelty Products 3

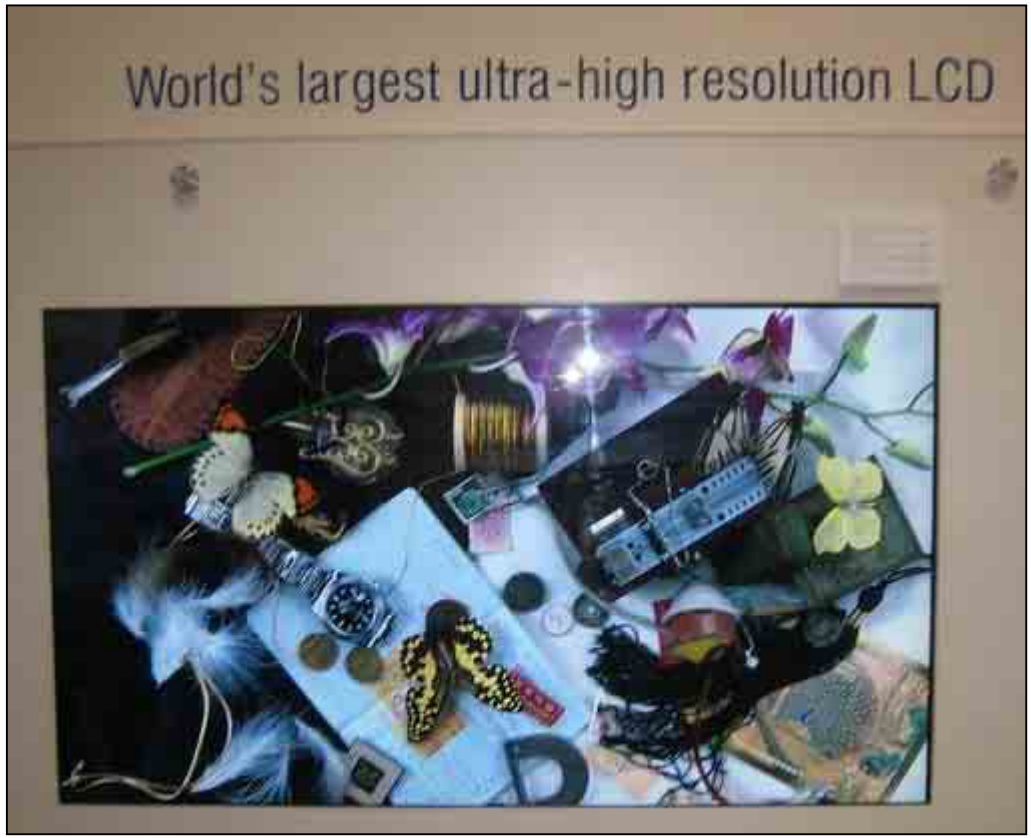
Hanspree TV. This company had a whole line of nicely styled LCD TV's. Very creative designs.

Miscellaneous

Coaxsys Exthernet over Coax cable adapter. This product uses a low cost Xilinx FPGA for a production solution. This approach had not normally been done in the past, Xilinx is trying to compete with gate array solutions and this is a new emerging solution in consumer electronics.

Sleeper Products

Flexible LCD display at the Philips Electronics booth. The roller moves up and down rolling up the display while an image is displayed.



Westinghouse LCD display with 4X the resolution of the highest HDTV format. Images displayed looked like photos.

Observations

- HDTV and streaming video were two top technologies being promoted at show.
- Since introduction of Sony Walkman, audio has become portable and personal. Video has been bound by large display sizes, power consumption and generally only available off air. Personal media players with streaming video capabilities change this forever. Video will become personal and portable.
- Game Consoles will make the personal computer go the way of the typewriter, something generally used only at work.
- 1.8GHz Pentium “M” is the typical laptop CPU
- AGP is dead, PCI Express is now. We must quickly transition to Southbridges with PCI Express.

Observations

- High Definition DVD players are here now. They will be the driving technology pushing the growth in sales of High Definition displays.
- Advanced game consoles will be a popular technology at CES 2007.
- Advanced game consoles will be used for non gaming applications due to their high power processing and graphics capabilities. Expect to see game consoles used in applications like medical imaging, CAD, video editing, etc.