CES 2007 Download

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Santa Clara Valley IEEE Consumer Electronics Society

January 30, 2007

www.ieee.org/scvce

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2007 Schedule

- February **28**, 2007, Wednesday, Altium FPGA design tools
- March 27, Intellectual Property and Patents
- April **17**, DLNA Update, Scott Smyers, Sony
- May 22, Novalux, Jean-Michel Pelaprat
- June **19**
- July 24
- August 28
- September 25
- October 23
- December 4

Date Changes in Red

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2007 SCV IEEE CE Society Officer Candidates

- Gary Sasaki, Chairman
- Winston Chen, Program Chairman
- Will Lumpkins, Program Vice-Chair
- Jorge Campello, Secretary
- Bill Orner, Web Master
- Rich Elder, Treasurer

- We also welcome new members to the program committee to help with and plan future events

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CES 2007 Download

International **CES** 40th Anniversary 1967-2007 PRODUCED BY CEA

2,500 exhibitors and 145,000 visitors

Please save Q&A to the end

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Displays, Imaging, etc.

Gary Sasaki
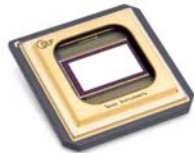DIGDIA

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Size Still Matters

Sharp's 108" LCD TV.
(Summer 07)

Sony's 27" OLED.
Very thin and
Million:1 contrast.
(No price or Availability)

Finally, T.I. has a true
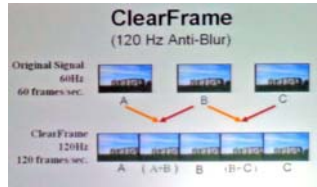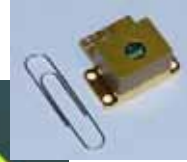consumer 1080p DLP.

Samsung
Pocket Imager

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Gary Sasaki - DIGDIA

Displays Move to IQ

2004 – Year of HDTV
2005 – Year of 1080i
2006 – Year of 1080p
2007 – Year of IQ

LED backlighting
Longer Life
Wider Gamut

MORE THAN TWICE THE COLOR OF NTSC

ClearFrame
(120 Hz Anti-Blur)

Original Signal
60Hz
60 frames/sec.

ClearFrame
120Hz
120 frames/sec.

Toshiba LCD -
120 Hz ClearFrame.
Clearer motion.

Samsung
"Local Dimming"
Better Contrast in dark scenes

Conventional   Local Dimming

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HDTV Capture

Panasonic
HDC-SD1
1 hour of 1080i
recording
onto 4GB SD Card

Sony HDR-HC7
HDV with optical image stabilization.
This one uses Mini-DV,
other model use Blu-ray

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Gary Sasaki - DIGDIA

LG – Super Multi-Blue

Controls on top

Probably the biggest CES 2007
product introduction with
the biggest impact to the CE industry
- Others were defensive
- OPU uses three paths
- $1,199
- Supports BD-J, not iHD
  (PC drive does support iHD)

Warner's
Total HD
Disk

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Gary Sasaki - DIGDIA

Other Notables

Samsung A-VSB
Mobile ATSC TV

Without A-VSB   With A-VSB

Sonic negotiates
Home and Kiosk DVD burning
With CSS

Hitachi auto-stereoscopic
display.
3-D is approaching mainstream.

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And then...(see more at digdia.com)

Hannspree – 42" Plasma, $15K

Hotseat Flightsim

MTX Audio Car Speaker

Mogo Pop-out Wireless Mouse

WowWee Singing Elvis

Trimersion
Head Display
For Games

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Gary Sasaki - DIGDIA

Digital Storage at the 2007
Storage Visions Conference and
the International CES
—It all runs on Storage—

Tom Coughlin
Coughlin Associates
www.tomcoughlin.com

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2007 CES & SV07 Storage Products

LG

Holographic Storage
(InPhase)

Seagate

HGST

Samsung

Sandisk

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Consumer Products using or Enabled by Digital Storage

E-SATA 3 Gbps!
Ethernet (IP and Cable)

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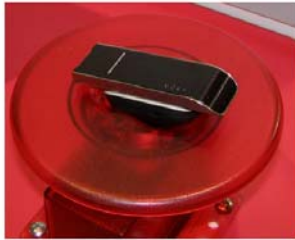**IEEE** Santa Clara Valley
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Flash Memory

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USB Drives

Sandisk USB
ReadyBoost
Drive for Vista

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New Products from SanDisk

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Optical Disks

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Blue Laser Optical Disk Format War

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Introduction of Holographic Storage

- InPhase introduces first 300 GB holographic write-once disk
- First use for professional video
- Hardware still bulky
- With miniaturization of hardware could this be a 1 TB CE disk?

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Professional Devices & Media

Archive for -
**Professional Video
& Data Archive**

DRIVE $18,000 List Price

- 300 GB Capacity
- 20 MB/S: 160 Mbs Transfer Rate
- 250 ms worst case seek time
- 407 nm Laser
- 1.4megabits/page
- BER <10^{-18}
- 100K power on hours MTBF
- Form factor W: 5.750" H: 4.875" L: 26"

MEDIA $180 List Price

- Write once
- 130 mm disc
- 3 year shelf life (prior to recording)
- >50 year archive life
- No special handling required
- 5.25" X 6" X .25"

300GB 20MB/s   800GB 80MB/s   1.6TB 120 MB/s

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First 1 TB HDDs Introduced

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Lots of DAS and NAS Storage

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More HDD Advances

- Fujitsu introduced a 300 GB 2.5-inch drive
- Toshiba introduced a 100 GB 1.8-inch drive
- Seagate said they would ship 1 TB 3.5-inch drives in first half 2007
- In Mobile 2.5-inch HDDs in 2007
  - FDE drives with in-drive encryption (Trusted Computing Group)
  - Hybrid drives with non-volatile flash used for HDD write cache (Hybrid Drive Association)

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Removable Drive Storage

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Storage Devices Working Together

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The Agere BluOnyx™ Mobile Content Server

Open Operating System

Connectivity Options: Bluetooth, Wifi, SD, USB

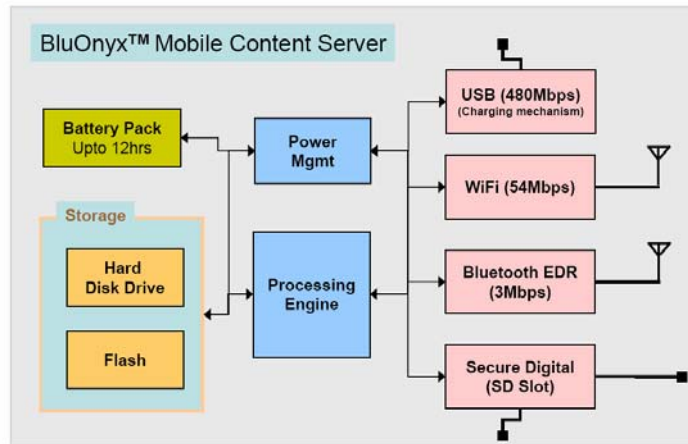Approximate dimensions of Agere BluOnyx™ Server (1.8"HDD). Indicated in red relative to credit card

85mm

54mm

Storage Capacity 1GB – 40GB HDD &/Or Flash

Material from Agere, SV07, Jan. 2007

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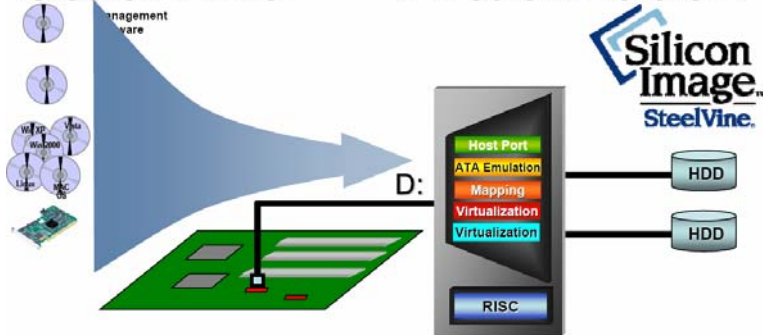
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BluOnyx Mobile Content Server: Open System Focused On Mobile, Connected, Intelligent Storage

BluOnyx™ Mobile Content Server

Battery Pack Upto 12hrs

Power Mgmt

Storage

Hard Disk Drive

Flash

Processing Engine

USB (480Mbps) (Charging mechanism)

WiFi (54Mbps)

Bluetooth EDR (3Mbps)

Secure Digital (SD Slot)

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SteelVine™ Virtualization

- **Virtualization engine**
- **Looks like a standard SATA/USB drive**

Material from Silicon Image, SV07, Jan. 2007

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eSATA Capacity Expansion

- Multiple drives per host port means DVR's can
  - **Seamlessly expand**
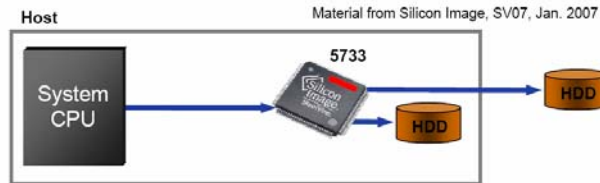 - **Applications unchanged**

Material from Silicon Image, SV07, Jan. 2007

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Auto Drive Locking (5733)

Host

Material from Silicon Image, SV07, Jan. 2007

5733

System CPU

HDD

HDD

- **Drive is auto-locked to 5733 upon enumeration**
  - Stolen drives un-usable, if removed - automatically lock
- **Each device has secret 128 bit key in ROM**
  - Secret Key cannot be extracted using HW or SW
  - Only 5733 knows the secret key to lock/unlock

User forgets but, 5733 always remembers to protect

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Changes in electronics and the market

- Customers don't buy anymore just because a product has a faster processor
- New trends driving CE market
  - Mass customization (low cost products meeting individual needs)
  - More niche products, loss of mainstream
  - More and more products and content will have to access individual preferences and experiences
  - Development of new levels of personal storage could drive entirely new markets for commercial products that utilize this information to the benefit of individuals
- More data now shipped for personal use (including personal computers) than commercial (e.g. IT) use

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Impact of new modes of sharing information

Content Creation and Distribution for Everyone!

- Social networking
- Second life
  - New virtual economic models with real world returns
- Youtube and similar content sharing technologies
- Peer to peer
- Could we see new modes of bringing people and ideas together
  - A common interest engine
  - New driver for economic growth

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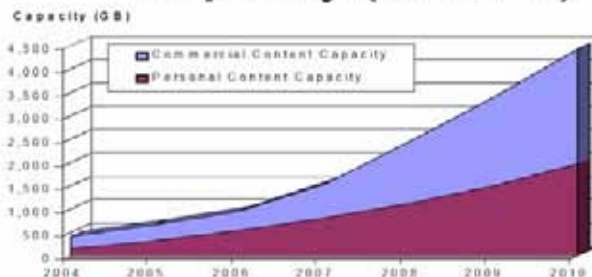Consumer Electronics Society

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Growing importance of personal content

- By the next decade there will be more personal than commercial digital content stored
- This will create new markets and opportunities to serve this diverse and dispersed market
- Increasingly consumer electronics will be driving new technologies. CE could displace IT in the generation of technology solutions
- Storage demand is infinite—we can't keep enough information—as long as we can afford it, find it, keep it and preserve it
- Storage must help in organizing and finding data—object storage in CE devices

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Cumulative Home Storage Capacity (at SV06)

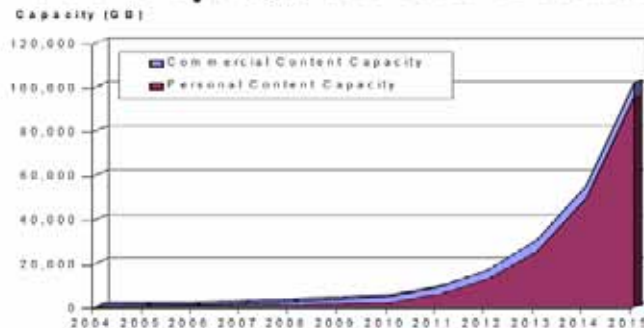Almost 2 TB of personal reference data and 2.5 TB of home commercial content by 2010

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Extended Projection Showing the Impact of Life-Logs on Personal Content Generation in a Technology Savvy Home
--100's of TBs in Next Decade--

@SV07

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By 2015

- A terabyte in your pocket
- A petabyte in your home
- Exabytes in datacenters
- Zetabytes in the world

Digital storage demand is very elastic

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Portable and Handheld computers

Bill Orner
Transmeta

Comments made are the views of Bill Orner and do no express the opinions of IEEE. Apologies to anyone in the audience who may work for companies mentioned!

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Pepper Pad 3

- AMD Geode LX800 Processor
- 256MB DDR1
- Linux 2.6 kernel
- 7 Touch Screen LCD 800 x 480
- 20 GB HDD
- Split QWERTY keypad
- 802.11 b/g
- 2 Speakers
- USB 2.0
- Built-in webcam
- $700

The Pepper Pad is a device that lets you read email, browse the web and view media (pictures, MP3, etc.). This is a product concept that just won't die. Many years ago National Semiconductor had a product reference design called Webpad. Webpad was supposed to be a great light weight wireless web connected appliance based on the Geode processor. Several companies did Webpad products and they all died a horrible death, most notable was the 3Com Audrey. The problem with these products is that they all ran either Linux or some other proprietary OS. There is too much media on the web that requires special drivers that are only available for Windows. Look for this product at Haltek soon!

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Innowell UREN

- 7" touch screen, 800 x 480
- Windows XP Home Edition
- 1GHz Via or AMD LX800 (500MHz)
- 256MB DDR1
- 1.8" 30GB HDD
- Built in GPS
- 10/100 Ethernet
- 802.11 B/G
- Mono speaker
- Two USB 2.0 ports
- Stereo headphone jack
- 1800mAh Lithium
- Battery life: 1.5 hours with Via 2.5 hours with AMD

The UREN is a design based on Microsoft's tablet strategy. The concept and features are the same across all the Tablet products. See comments at the end of this report

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AMtek Origami

- Via C7, 1GHz (fan cooled)
- 7" touch screen, 800 x 480
- Windows XP Tablet Edition
- 1 SODIMM slot, DDR2
- 2.5" 40GB HDD
- 802.11 B/G
- Mono speaker
- Two USB 2.0 ports
- Stereo headphone jack
- 2400mAh Li-Ion Battery

This is the much talked about Origami product that cause
Transmeta's stock price to go wild. This is the same features
and functions as the UREN.

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Raon Digital Vega

- 4.3" touch screen, 800 x 480
- Windows XP Home Edition
- AMD LX800, 500MHz
- 256MB DDR1
- 1.8" 30GB HDD
- 802.11 B/G
- Stereo speakers
- Two USB 2.0 ports
- Stereo headphone jack
- 3300mAh Lithium
- Battery life: 5.5 hours
- $1,100

I actually got a chance to use a Vega at the AMD booth. I was
quite surprised with its fast responsiveness, I loaded Microsoft
Word and Excel and the applications came up very fast. The
product ran very hot.

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Samsung Q1

- Intel Celeron-M ULV, 900MH
- 7" touch screen, 800 x 480
- Windows XP Tablet Edition
- 512MB DDR2
- 2.5" 40GB HDD
- 802.11 B/G
- 10/100 Ethernet
- Mono speaker
- Two USB 2.0 ports
- Stereo headphone jack
- 3 hours with standard battery
  7 hours with extra battery
- 2400mAh Li-Ion Battery
- $1,000
- Available for purchase

The Samsung Q1 was the most well engineered of the Tablets I saw. The product detail, quality and "feel" were the best of all. I was not able to handle and operational unit, there was a person doing the demonstrations.

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Samsung Butterfly

This is the top secret Samsung SPH-P9000 "Butterfly" device. It features a 1.0GHz Transmeta processor, 256MB memory, a 5.0-inch TFT screen, CDMA EVDO, WiMAX, and a 1.3-megapixel camera. It runs a full version of Windows XP. This is a very cool product which folds up very small.

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Asus

I saw the ASUS tablet at the Microsoft booth. There was such a crowd in the booth and this product had such a tiny section that I was not able to collect any information on it. This product sort of bridges between a Tablet and UPC.

Sony Vaio UX

- Intel Core Solo, 1.20 GHz
- Integrated WAN
- 1GB RAM
- 40GB hard drive
- 4.5" LCD, Touch Screen
- $1,900

Here is a product that looks like an industrial computer. Sony incorporated EDGE networking in it which could make it a hit with truly mobile professionals like delivery trucks, taxis, etc.

OQO 02

- 1.5GHz VIA C7M ULV
- Windows XP Tablet Edition
- VIA VX700 with shared video memory
- 60GB HDD
- 1GB DDR2
- Approx $1,700

This is OQO's second generation product. OQO really invented the concept of the Ultra Mobile PC (UMPC). This is a very well engineered product that unfortunately has not had much success.

Medion UMPC

- VIA C7, 5.0W 1.0GHz ULV
- 512MB DDR2
- 30GB HDD
- Microsoft Windows Vista
- 6.5″ 800 X 480 Touch screen
- Web Cam
- 802.11b/g
- Bluetooth
- VGA out
- USB 2.0
- Media slot (SD/SD-IO/MMC) x 1
- Headphone jack x 1
- Microphone jack x 1
- Battery Life 4 ~ 5 hrs
- Optional GPS
- Shipping soon.

The Medion is an "OQO" like product. The split keyboard makes it more functional that the tiny OQO keyboard.

Motion Computing

- Windows XP Tablet PC Edition.
- Intel Celeron-M 1.0 GHz
- 12.1" XGA TFT display
- Digital Video Interface (DVI-D) port
- 3+ hours battery life
- Bluetooth
- Array microphone
- Integrated Fingerprint Reader
- Trusted Platform Module (TPM)
- $2,000

Motion Computing is a company who makes products for professional markets.

Quanta OLPC

- AMD Geode, 366 MHz
- AMD CS5536 South Bridge
- Integrated Graphics controller with Geode CPU; unified memory architectur
- ENE KB3700 keyboard controller
- 128 MB DR266
- 1MB SPI BIOS ROM
- 512 MB SLC NAND flash
- No rotating media
- 7.5" Dual-mode TFT display

This is the much talked about One Laptop Per Child "OLPC" product that was spearheaded by MIT and built by Quanta Computer. This product was met with much skepticism at the show. The units on display had slow performance, lack of software and Fisher Price appearance. Many spectators mistook this for a kids toy. The wind up battery charger was removed from the product due to mechanical design challenges.

Coolest Technology at CES

This is the Canesta IR keyboard. An image of a keyboard is projected on a flat surface, infrared sensor detects finger movements. I tried it and it really worked! Great for applications like clean rooms, very tiny computers where keyboard input is only occasionally needed.

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Conclusion

- Computers at the 2007 Consumer Electronics Show took a back seat to flat screen TV's.
- This is the year that flat screen TV's will see tremendous growth as their price levels hit the magic sub $1,000 price point.
- As Via drops out of the CPU business, it will leave a hole for Intel and AMD to offer products with integrated north and south bridges.
- Use of PCI Express as a docking interface, a UMPC product could be plugged into a dock where an external high power graphics controller can run the docked display. This is a very attractive architecture since the portable unit is not burdened with the massive power consumption of the graphics controller to run the mobile LCD display.
- As people become much more dependant on computers to perform their job with functions beyond email, small form factor computers will see increased demand. The big companies like FedEx and UPS can afford to have custom computers made for their trucks. What about the smaller companies that want real time package tracking or real time order entry? for them UMPC's, and truck mounted laptops make sense.

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Trends in Consumer Content Portability

Chris Pedersen
DIGDIA

Consumer Commercial Content Portability Landscape Pre-CES 2007

- Music and audio was largely portable as MP3s, Podcasts & CD's – small growing "locked-content" libraries (e.g. iTunes)
- Except for DVD's, Video was inside walled-gardens
- There were some one-way links *to* set-top boxes *from* the PC, but not *from* the STB *to* the PC
- Internet video, though growing in popularity was about short-clips viewed on the PC
- Cell phone video & placeshifting (e.g. Slingbox) was a theoretical possibility for most

Chris Pedersen

Consumer Content Portability News At CES 2007

- DishNetwork is defining an "open" standard for their PMP "to-go" interface
- DishNetwork will allow consumers to expand their PVR storage with USB HDDs
- Dish & DirecTV will utilize broadband IP to deliver on-demand (niche) content to PVRs
- Place-shifting gaining momentum – Sling Media's CBS demo of Clip-n-Sling, & Sling Catcher
- Microsoft's demonstration of the X-Box 360 IP STB
- Many, many PMP's demonstrated without services

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What Real Changes & Future Changes Were Telegraphed?

- The walled-gardens are expanding their walls!
- Internet video to TV will expand, but, for most consumers, as part of the walled-garden experience
- Low-quality content portability will grow as content owners realize the promotional benefits of free sharing
- Place-Shifting likely to grow
- In-car video likely to stay DVD-based
- Mobile
  - Cell phone video still trying to prove itself
  - Apple iTunes video way ahead

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Wireless & Automotive

Winston Chen
AMD

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Sony mylo personal communicator

5.3-ounce, convergent broadband communications and entertainment device that allows consumers to stay connected via instant messaging (Google Talk), Skype, Yahoo Messenger service, web browsing, music, pictures and video in any WiFi hotspot, without monthly service contract. 1GB flash, slide-out Qwerty keyboard,

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Sony Ericsson Bluetooth Watch

MBW-100 is a stainless-steel analog wristwatch with some nonstandard features. Manage calls and songs on a compatible Sony ericsson phone. Vibrates to alert incoming call, name/number of the caller on an OLED display and allows calls to be muted or rejected by pressing various keys.

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Wherify Wireless communicator

Wherifone G500 series GSM GPS Locator Phone. It's the world's smallest managed dial GSM phone with built-in Aided GPS, and is in use by families and businesses on three continents. .

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Daimler Chrysler/Intel

Live high definition video streaming using Intel/UWB Technology enabling CE device connectivity to in-car entertainment system.
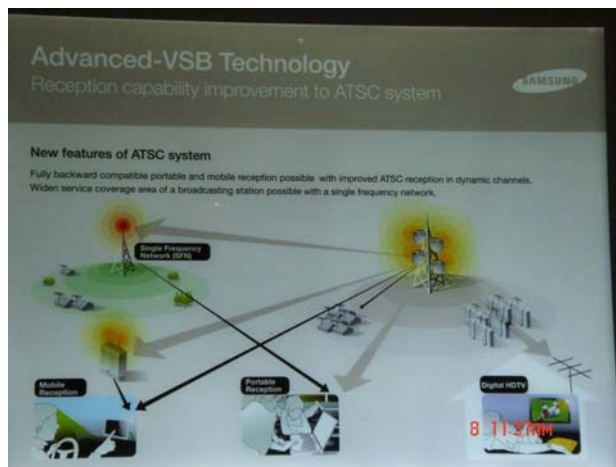

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Samsung A-VSB

Portable TV receiver proto. H.264 decoder. 4-inch wide screen.

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Dash Express

First Internet-connected automotive navigation device that connects people to the information that empowers them in their cars via Yahoo. (4th screen after PC, TV and cellphone). Always-on. Expect to launch in Spring in California and then nationally in the summer.

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VR3 Wireless Hands-Free Car Kit Visor Unit

Turns Bluetooth cellphones into a speaker phone for safer driving while talking. Its multi-position LCD screen lets you easily see who's calling.

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Nuvi 680 with MSN Direct

First GPS navigator offering dynamic, geo-referenced information like traffic conditions, weather forecasts, fuel prices, and movie times from the MSN Direct network via FM band. 4.3-inch wide screen, built-in Bluetooth, preloaded maps, MP3 and audio book player and travel guide.

Alpine Multimedia Station

Alpine's IVA-W205 and PMD-B200 were designed to work together. The PMD-B200 blackbird portable navigation device docks inside the IVA-W205 Mobile Multimedia Station inside a vehicle to create an audio-video/navigation system, creating an integrated AV+N system, but can be removed to be used in another vehicle. 3.6-inch LCD touchscreen. Comes with maps of the US and Canada, 6 million points of interest and a 16-channel GPS receiver. It delivers traffic reports in real-time.

Nokia N93i

Multimedia Computer. Capture DVD-like quality video at 30 fps. High resolution 3.2 megapixel camera. Shake free video with image stabilization. Upload your videos online with WLAN technology. Integrated access to VOX community (by Sixapart)

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CarMD

Empowers drivers with an easy way to monitor their car's health including "Check Engine" diagnostics and more (all 1996 and newer cards, light trucks, SUVs and minivans sold in the US). $89.99

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Scosche Bluelife Headphone IPBHPK

Bottom Dock Bluetooth Headphone Kit for iPod or MP3 player is a versatile, high-quality product that lets anyone listen to CD quality music and take hands-free cellular calls without wires. 9 Hours of rechargeable battery life.

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Oregon Scientific

The AW131 Talking Wireless Oven/ BBQ Thermometer verbally alerts you when your entree has reached the perfect temperature.

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LG AX490

The LG AX490 features Fastap(tm), a next-generation keypad design that uses raised and lowered keys in combination with error-prevention software to make wireless data services and phone features simple.
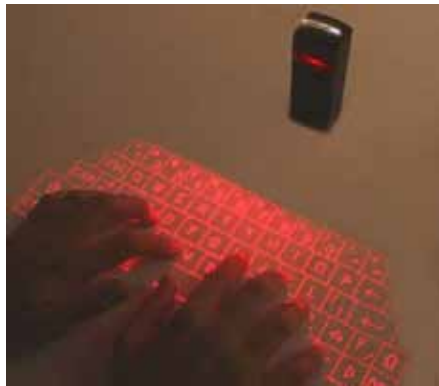
Golan Virtual Keyboard

2 ounces, Bluetooth Virtual Keyboard leverages a holographic optical element and a red-laser diode to project a full-size keyboard onto any flat surface. An infrared plane of light detects the keystrokes and a CMOS image sensor and customer hardware complete the real-time virtual key-board. The strokes are transmitted to a Bluetooth-enabled PDA, smart phone, laptop or PC over a 9-meter transmission range.

New Media Life TAVI 030

The world first and smallest portable wireless IPTV & Podcasting service device with satellite TV reception, lets you enjoy wireless VOD and contents service with HD TV support.

TAVI 030

Logitech QuickCall USB Speakerphone

The QuickCall(tm) USB Speakerphone delivers premium voice quality in a speakerphone, and features all the controls needed to pick-up/hang-up calls, and adjust/mute volume making PC calling easier than ever before.

Logitech Cordless Internet Handset

Logitech's Cordless Internet Handset offers the familiarity of a typical phone and can be used to make Internet-based calls using Skype from anywhere in the home.

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Philips DECT Cordless Phone

The ID9371B DECT phone/answering machines combo. Includes SIM card reader to copy over a phone's name and numbers. Can send and received SMS messages and identify who's calling based on the ring tone.

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VTech Cordless Internet Handset

The VTech ip8300 infoPhone is an advanced broadband-enabled telephone that combines standard telephony, peer to peer VoIP calling, and personalized information delivery in an easy to use cordless handset.

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Analog Device Wireless HDMI

The Tzero-Analog Devices wireless HDMI solution is the market's first standards-based offering designed to enable wireless A/V connections between all types of products - HDTVs, DVD players, STBs and more.

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Staccato Communications

The Single-chip CMOS UWB solutions in customer-developed products

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2007 ICCE Conference Report

Will Lumpkins
Director of Engineering
Pragmatics Technology Inc.

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Introduction

25th International Conference on Consumer Electronics, held in Las Vegas, 370 attendees, Jan 10th ~ 14th 2007

Traditionally, follows the world acclaimed CEA sponsored CES show as the technical sessions sponsored by the IEEE CE Society

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Will Lumpkins

Tutorial Sessions Jan 10th & 11th

- "Peer-to-Peer Technology and its applications"
  - Presented by Thomson, Yang Gou & Christoph Neuman, Corporate Research
  - Great review of a much debated technology, discussed technical aspects of P2P technology and left the ethical concerns to the individual
- "Modern Receiver Architectures –From Super heterodyne to Zero IF Digital Receivers"
  - Presented by NXP (previously Philips Semiconductor), W.Weltersbach
  - Good historical review, detailed review of architecture as well a great discussion on future developments
- "Copy Protection and Digital Rights Management"
  - Presented by Philips, Willem Jonker
  - Public Key cryptography, CSS, 4C(CPRM/CPPM), 5C(DTCP), OMA, CORAL, DVB, Marlin, MPEG-21
  - Great review on a complex bevy of DRM protocols

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Tutorial Sessions Jan 10th & 11th

- "Perceived Motion Blur and sharpness in Liquid Crystal Television"
  - Presented by Sharp Laboratories of America, Scott Daly, Xiaofan Feng, Hao Pan
  - Covered LCTV, Spatiotemporal vision, LCD Temporal issues, Perceptual Appearance (the Motion Sharpness Effect)
- "Residential DSL Standards"
  - Presented by Texas Instruments, Dr. Jalil Kamali
  - Short and sweet discussion on ADSL2 & VDSL2 with Annexes

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Tutorial Sessions Jan 10th & 11th

- "Recent Developments in Video Compression Standards: From Scalable to Multi-View Video Coding"
  - Presented by IMEC, University of Leuven, Bart Masschelein, Jianbo Lu, Iole Moccagatta
    - MPEG & ITU-T Standardization bodies
    - H.264/MPEG-4 AVC
    - Scalable Coding of MPEG 4
    - MPEG-4 Multi-View Coding
  - Very good overview of MPEG4 Video Standards

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Jan 12th

- Opening Key note "Consumer Electronics: Multidisciplinary Sciences in Action"

  – Presented by IEEE CE Society President, Will Lumpkins

  – Discussed examples of various sciences that are often overlooked in creating successful CE based products
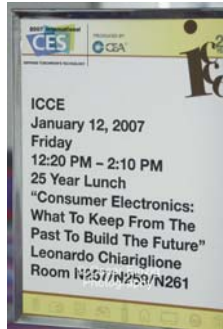

Jan 12th

- Morning Sessions
  - Modern Topics in Audio Signal Processing with Applications to Consumer Electronics
  - Digital Video Broadcasting DVB-T/DVH-H
  - Optical Storge on CD & DVD
  - H.264/AVC Implementation

Jan 12th

- Lunch Keynote
  - 25 Years Lunch "Consumer Electronics: What to Keep from the Past to Build the Future"
  - Presented by Dr. Leonardo Chiariglione

ICCE
January 12, 2007
Friday
12:20 PM – 2:10 PM
25 Year Lunch
"Consumer Electronics: What To Keep From The Past To Build The Future"
Leonardo Chiariglione
Room N257/N259/N261

Exciting-Provoking Discussion
Seemed to say that CE makers have missed the mark in serving the consumer but there is hope in the future with a Multi Disciplinary approach in listening to the needs of the user

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Jan 12th Friday Afternoon Sessions

- Home Networks, New Services and Interactions
- Digital Consumer Storage Systems
- Future TV
- User Authentication
- ATSC Transmission
- Blue Ray Disc
- Advanced Video Coding and Applications

- Afternoon Break:
"Ice Cream Sunday's"
American Culture at its best

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CEA Sponsored Reception

• A Great time to network and relax with great food and free alcohol

Jan 13th Saturday

• Morning Sessions
  – Home Networks, Advanced protocols and Services
  – Satellite DMB
  – Personal Video Recording
  – H.264/AVC
  – Automotive Systems Technology
  – Wireless Methods
  – Home Media Servers
  – Image Scaling and Sharpness Environment

Jan 13th Saturday Awards Luncheon

Many awards were given out

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Jan 13th Saturday Awards Lunch

- Keynote:" Digital *Television: From Laboratory to Living Room***"** Wayne Luplow, Zenith Electronics Corporation

- Presented a review of the history of Television Development and discussed the future of mobile DTV deployment.

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Jan 13th Saturday

- Afternoon Sessions
  - Audio Signal Processing
  - Future TV part 2
  - Display Electronics
  - Networking and Security applications
  - DRM Technology
  - Terrestrial & Mobile DTV Reception
  - Human Computer Interaction
  - Multimedia Streaming

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Jan 14th Sunday

- Morning Sessions
  - Health Care and Networking Systems
  - Acquisition
  - Still and Video Cameras
  - Motion Compensated Video Processing and 3-D TV
  - Gaming & Processing Architectures
  - Equalization
  - Picture Quality Improvement and Measurement

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January 14th

- "25 Years Lunch" "Looking Forward"
  - Keynotes from Texas Instruments, Bill Krenik and DSL Forum President
  - Discussed the future of Mobile Communications and Handset Communication
  - The DSL Forum President discussed the Future and Viability of DSL and its continued work with various standards bodies

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January 14th Sunday

- Afternoon Sessions
  - Applications and Techniques for Audio Players
  - Wireless Systems
  - Mobile Multimedia Applications
  - Interoperability of Performance Improvements in Mobile and Home Networks
  - Wireless Implementation
  - Photo Organization and Applied Compression

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Conclusion

- Many keynote speakers emphasized the need to "Look beyond normal engineering" and to look to the end user or consumer in developing the products of tomorrow.
- The Conference was fun and very educating on what university and various corporate research groups are delving into in the coming years.
- I look forward to ICCE 2008 and ISCE 2007 located in Dallas, Texas this year.

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