



Home Entertainment & Displays

High on Entertainment – Low on Power

Philippe Lambinet

General Manager, Home Entertainment & Displays Group (HED)

STMicroelectronics

HED Driving Multimedia Convergence



STMicroelectronics

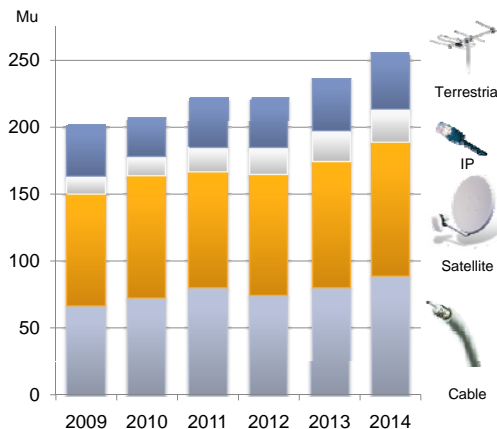
Consumer Electronic Trends



- **Analog switch-off**
 - Increasing demand for Pay TV and FTA satellite
- **New connected services**
 - Content aggregation – broadcast & IP
 - Services across all consumer devices
- **Exciting entertainment experience**
 - 3D stereoscopic TV
 - GUI technologies -- 3D graphics, MEMS...
 - LED BLU
- **Environmental factors**
 - Power consumption
 - Green production



STB Market

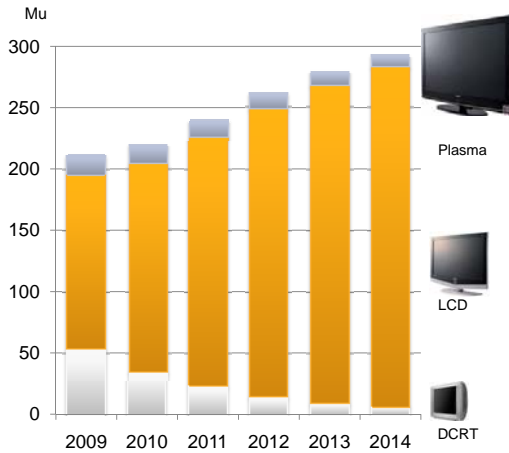


- **New value-added services in EU and USA**
 - Broadband & broadcast
 - Monetized with advanced security
 - Combined with home networking
- **China market is the largest market with growth in cable & IP**
- **Brasil, India, deploying on SD H.264 essentially starting to commoditize**
- **MPEG2 commoditization**

STB Market Evolution

Source: IMS

DTV Market



- Larger share of screen size for 40" and above
- More internet services & content targeting connected TV
- Faster migration rate to digital reception
- Fast technology pace
 - 120Hz to 240Hz
 - LED BLU
 - 3DTV

DTV Market Evolution

Source: iSuppli

Our Application-Platform Evolution



	Gen. 1	Gen. 2	Gen. 3	Gen. 4
	HD H.264 market enabler	Best Performance/ cost ratio	New services New UI Client/server	Fully open connected platform internet TV
	STi7100 7109, 5202	STi7105 7111, 7141, 7200 5211, 5206, ...	STi7108 71xx, 52xx	STi7xxx
	STi7103/FLi106xx MPEG2 H.264 VC1	STi7104/FLi326xxH 1000 DMIPS CPU <u>Introduction of:</u> AVS HD DDR2 e-SATA	FLi7510 Dual CPU & L2 cache >2000 DMIPS <u>Introduction of:</u> 1080p60 decode 3D GL-ES2.0 MOCA 1.x	FLi7xxx Multi-core SMP CPU >5000DMIPS <u>Introduction of:</u> Dual 1080p60 decode HD encode Display Port, MOCA 2
	Mass production Production: 2007 →	Mass production Production: 2009 →	Samples now Production: 2010 →	In design Production: 2011 →

HED H1 2010 Highlights



- **G2 based STB massively deploying**
 - Mass production started in June 2009
 - 55nm process with >10 products families
 - > 50 customers now in production
 - > 50% of ST total STB shipments from 2010
- **G3 getting ready for ramp up in 2010**
 - G3 introduced at CES 2010 in January 2010
 - Freeman/FLI7150 solution for DTV designed in at multiple partners
 - >20 partners enabled with STi7108 platform
 - Develop new category of STB & media center
 - Develop new software for new services
 - RIA, GUI, gaming, mediaserver, ...

ST Vision



Why Reduce Power in CE ICs?



- Governmental regulations compliance
- End customer demand: a consumer selection criteria
- Optimized product cost
 - Bill of material
 - Product reliability
- ST vision: ST's environmental engagement to sustainable excellence

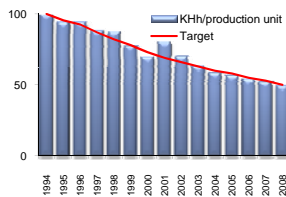


Principles for Sustainable Excellence



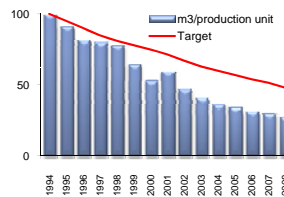
Energy

Electricity consumption per unit of production - normalized values



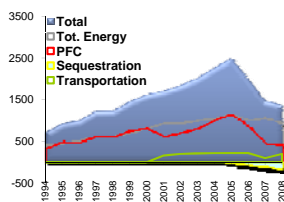
Water

Water consumption per unit of production - normalized values



CO² emissions

Absolute values

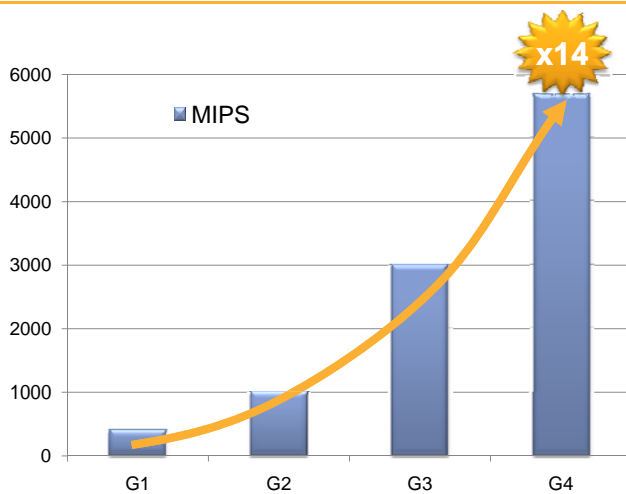


Reduction of waste



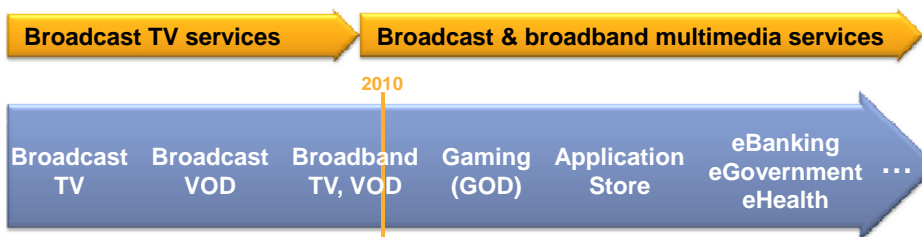
Landfill: from 71% in 1994 to 4% in 2008

Processing Performance Evolution



> 240% performance increase over 3 product generations

STB Security Requirement Evolution



- New value-added services require increasing security resilience
- Rapidly increasing service choices accessible by users requires increased security flexibility without compromise on robustness

ST's Strength in CA & Security



- Long-time partnerships with leading security vendors



- Mastering security from end-to-end

- Security technology developed internally allows for faster adaptation as security evolves
- Full support for smartcard and internal CA



- Late security customization in manufacturing flow

- Delivery flexibility and reduced inventory



Audio & Image Quality Enhancement



- Leveraging years of excellence
- Internet-driven content requires extensive video processing to meet customer's quality expectations
- Sound terminal for high quality low cost speakers



FAROUDJA
VIDEO / AUDIO / AUDIENCE

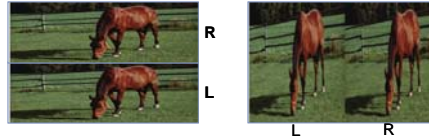


ST is Ready for 3DTV



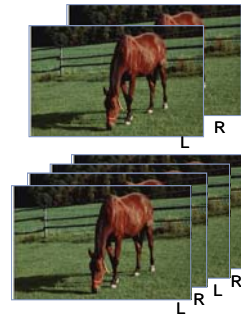
Deployable now!

- Side-by-side support (SbS)
- Top-and-bottom support (TaB)
- ½ resolution 1080p
- Available on all G1 & G2 platforms



Ready for the future

- Frame sequential support added
- Full HD resolution
- Frame rates increasing
 - 60fps on G3 platforms
 - 120fps on G4 platforms



3D Graphics on G3 and G4



- Standards-based: OpenGL-ES 2.0 and OpenVG 1.1
- Optimized for new class of user interfaces
- Paves the way for gaming services

Summary



- **ST has an established position in the home entertainment market**
 - OEM, Ecosystem familiar with ST
 - Proven solutions
- **ST provides complete solutions for a wide range of consumer services:**
 - STB, DTV and other CE devices
- **Unmatched user experience, services and energy-efficiency**
- **ST deploys new technologies for home entertainment to grow revenue**
 - 3D video, 3D graphics, image quality, ...
 - Compelling internet convergence
 - Casual and full gaming ...
- **ST helps build greener products**



FAROUDJA
VIDEO / AUDIO / AUDIENCE

