The Future of TVs – LCD & LCOS

Vincent Sollitto, Chairman and CEO
Syntax–Brillian Corporation
The Future of TVs – LCD & LCOS

Here’s what’s coming…

HD-DVD
IPTV
Blu-Ray
1080p

LED-Laser

What will it enable?
Professional-Grade Video Processing

- Dirty secret of HDTV
  - New compression artifacts that were not present in good analog transmission
  - As a result, video processing electronics face new challenges
    - MPEG block artifact removal
    - Digital noise removal
    - Scaling artifact removal
    - Deinterlacing artifact removal

- Particularly since improvement in display quality highlight these flaws
Professional-Grade Video Processing

Here’s what’s coming…

- Professional grade video processing
- Support legacy content up to HD content
- Integrated into both LCD/LCOS sets or as add-on standalone products

What will it enable?

- Eliminate the disappointment factor
- Eliminate the finger pointing
  (It’s the TV, it’s the satellite service, it’s the cable provider, it’s the DVD player, it’s the source material, etc.)
- A beautiful digital image
- Satisfied customers
Current illumination technologies (Lamps, CCFL, etc.) have been too slow in cost reduction and innovation.

- Supply shortages
- Short lifetimes
- Limited color performance
- Slow start up
- High cost
Here’s what’s coming…
- LED illumination for both LCD and RPTV applications
- Laser illumination for RPTV applications
- Improved thermal management for both
- Smaller screen sizes first, then larger

What will it enable?
- Instant-on/off
- Improved color performance
- Better black state uniformity
- Better performance of LCD versus plasma
- 10X improved lifetime
- Satisfied customers
Interconnectivity of devices…

- is one of the largest hidden costs of buying an HDTV
  - Cabling cost is frightening
  - Cable management is a nightmare
  - Connectivity is complex for the end user
Here’s what’s coming…

- IPTV
- W-USB (480 Mbps)
  Certified Wireless USB

What will it enable?

- HDTV is the point of control in transmitting content to other TVs in the home
- Enable consumers to reduce the cost and complexity of cable management
- Improve the connectivity by enabling more devices to connect seamlessly
- Satisfied customers
Re-invigoration of Thinner RPTV Platforms

- Current RPTV lens designs limit the depth without causing compromises
  - First Gen Multimirror thin RPTV designs had significant issues in uniformity, brightness and form factor
Re-invigoration of Thinner RPTV Platforms

- Here’s what’s coming…
  - Spherical lens technology
  - Electronic keystone correction improvements for RPTV applications
  - Improvements in screen performance
- What will it enable?
  - Image quality of LCOS in hang-on-the-wall form factor
  - Thin RPTVs with uniform black levels and brightness
  - Up to 100” video walls without image degradation
Higher Resolution for the Masses

- 1080p is seen as the Holy Grail by many consumers
- PC content is already higher resolution
- Gaming content is generated in 1600x1200 resolution
- If the large screen will be the control point of content, then more resolution will be required
Higher Resolution for the Masses

- Here’s what’s coming…
  - The move to 1080p will come faster than expected
  - Gen 7/8 fabs will continue the cost reduction with high performance trend and further pressure PDP segment
  - Shrinking pixels in LCOS will enable cost-effective higher resolution
    - Ultra-high definition content (4x2K easy for LCOS)
- What will it enable?
  - View HD-DVD/Blu-Ray content
  - Support for multi-megapixel digital imaging
  - Gaming & Multimedia content in its originated format
  - Usable multi-tiled window environment
Portable TV

- Content producers are hot on portable TV applications
- Device makers recognize the limitations of existing displays
- HMDs enable large images, but killer application is missing
  - 3D content is limited
  - Devices that support 3D are complicated for consumers to use
  - Spatial-color (i.e., color filter based displays) impair the quality of 3D content
  - Expensive to implement
Portable TV

- Here’s what’s coming
  - Content Galore from ESPN, The Discovery Channel, etc.
  - More hand held and portable TV devices
  - 3D with “and” without glasses
  - Usability of legacy 2D content
  - No special interconnectivity requirement for 3D
  - LCoS HMD designs that deliver large image size in portable products
  - Low cost and affordable

- What will it enable?
  - As simple to implement as a standard display
  - Portable 3D content viewing
  - Affordable 3D
Conclusion

- Video processing improvements will continue and are required for the foreseeable future
- A tidal wave of changes are coming in the illumination systems of LCD and RPTV systems
- Wireless and network technologies are going to be key enablers for growth of LCD and RPTV products
- Thinner form-factors will evolve for LCOS RPTVs, but not at the expense of image quality
- Higher resolution applications and pixel shrink will continue to push market to 1080p+
- Portable TV will bring exciting new product concepts to the mass market
The Future of TVs – LCD & LCOS

Vincent Sollitto, Chairman and CEO