CMOS Image Sensors
Technologies & Markets - 2010 Report

Disruptive technologies pave the way to the future of digital imaging industry!

MARKET TRENDS

Image sensors have come a long way since the first introduction of CCD sensor technology in the 1990’s. They made a big jump in the 2000’s with the introduction of CMOS sensor technology which gave birth to the low-cost, high volume camera phone market.

Image sensors are now part of our everyday’s life: from cell-phone cameras, to notebook webcams, digital cameras, video camcorders to security & surveillance systems. In the future, new markets are also emerging such as sensors for medical applications, automotive safety features but also gaming and home TV webcams... The reason why we are now releasing the first report on CMOS image sensor industry is that we feel that we are at an historic turning point of this young, but still maturing industry.

Indeed, from 2010 and toward the next decade, the time has come that high-end and low-end markets start converging: digital cameras are on the way to get real HD video camcorder features. Meanwhile, camera cell-phones with auto-focus capability are on the way to get real digital still camera features along with basic video recording functionality.

CMOS Image Sensors Technology Drivers:
New Challenges to Face!

- BSI (Backside Illumination)
- New color filters, AR coatings
- Pixel isolation, substrate techno

HDR (High Dynamic Range)
- eDoF (Extended Depth of Focus)
- NIR (Near IR Capability)

Front-end

Packaging / Assembly
- WLP (Wafer Level packaging)
- 3D TSV interconnects
- Wafer Level Camera & Molding

Optical module
- WLO (Wafer Level Optics)
- Image stabilization (MEMS inertial...)
- Auto-focus (Piezo, liquid lens, MEMS...)

Software / Design

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The objectives of this first report are the following:

- To provide **market data on CMOS image sensor key market metrics & dynamics**:
  - CMOS image sensor unit shipments, revenues and wafer production by application
  - Market shares with detailed breakdown for each player
  - Application focus on key areas of growth for CMOS image sensor (handsets, DSC/SLR, medical, automotive, security & surveillance, etc …)

- To provide **key technical insight about future technology trends & challenges**:
  - From BSI (Backside illuminated sensor) and other front-end technologies evolution (Pixel isolation, color filters, micro-lenses…) to WLC (Wafer Level Cameras) realization with wafer level optics, Packaging / Assembly & Test (Wafer Level Packaging and 3D TSV interconnects), WDR (Wide dynamic Range) sensor technologies, Image stabilization & Auto-focus technologies (eDoF, Piezo, other mechanical AF, MEMS based, WL Auto-focus or liquid lenses)

- To provide a **deep understanding of CIS value chain, infrastructure & players**:
  - Who are the CMOS image sensor players (IDMs, foundries, design houses) and how are they related?
  - What are the key suppliers and emerging infrastructure for BSI, Wafer Level Cameras, and future optical camera module technologies?

**KEY FEATURES OF THE STUDY**

- **CMOS image sensor manufacturers**:
  - Evaluate market potential of future technologies and products for new applicative markets
  - Screen potential new suppliers for introducing new disruptive technologies such as BSI, new pixel architectures, Wafer level camera, Auto-focus & image stabilization for camera modules
  - Monitor and benchmark your competitor’s advancements

- **CMOS & Packaging Foundries**:
  - Spot new opportunities and define diversification strategies
  - Position your company in the moving CMOS imaging value chain

- **Assembly & Test Service companies**:
  - Get the list of the Top CMOS image sensor players
  - Understand the impact of new optical assembly technologies such as wafer level cameras

- **Equipment & Material manufacturers**:
  - Understand the evolution of image sensor and camera module value chain
  - Understand the differentiated value of your product and technology in this market
  - Identify new business opportunities and prospects

- **Electronic module makers & Original Equipment Makers**:
  - Evaluate the benefits of using these new technologies in your end system
  - Screen and select new image sensor suppliers

- **Financial & Strategic investors**:
  - Understand the potential of new imaging technologies such as BSI, WLOptics and MEMS Auto-focus
  - Get the list of main key players and emerging start-ups of this industry

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Jerome Baron is leading the MEMS & Advanced Packaging market research at Yole Developpement. He has been involved in the analysis of the CMOS image sensor industry at the sensor, packaging, assembly & test levels. He is also involved in the research linked to new equipment & materials for image sensor manufacturing. He was granted a Master of Science degree in Nanotechnologies from the National Institute of Applied Sciences in Lyon, France.
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Branch code: 00170
Account No. 526506 1565 87
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