



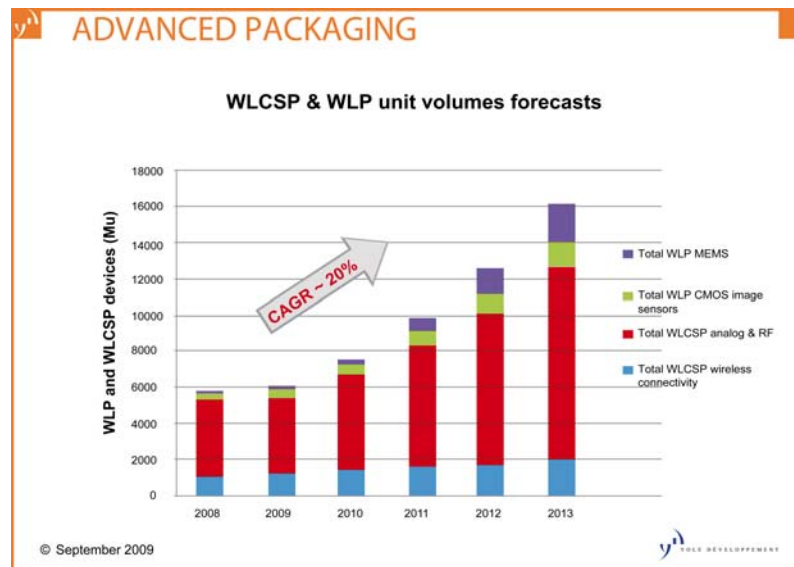
**PRESS RELEASE**

**Wafer Level Packaging 2009 Report**

**Technologies, applications and markets: A complete update on Wafer Level Packaging technologies with market status and forecasts**

Sept. 25, 2009 – Yole Développement updated its new markets & technological study dedicated to Wafer Level Packaging: Wafer Level Packaging 2009 report.

In this WLP- 2009 report, Yole presents detailed technical and market status and forecasts on WLP technologies and applications. Market figures and growth rates are provided in units and wafers for each market segment over the 2008-2013 period. Numerous application examples are given, recent technical developments and options are detailed, and industry-wide technology roadmaps are presented.



Wafer Level Packaging is a confirmed high growth trend in the semiconductor packaging industry. Wafer Level Chip Scale Packaging (WLCSP), or the direct bonding of bumped integrated circuits (IC's) on printed circuit boards (PCB's) as one of the most visible expressions of WLP, is undoubtedly the fastest growing package type in the whole industry. Yole forecasts that it will exceed 10 billion units per year by 2012, at a compound annual growth rate of more than 20% over the next 5 years. Primarily driven by footprint and thickness reduction of packaged integrated circuits in mobile phones, WLCSP is now used in a wide range of circuits for handsets: EMI/ESD interface protection;



power supply (PMIC/PMU, DC/DC converters, LED drivers, MOSFET's,...); connectivity (Bluetooth, WLAN); and other features (FM, GPS, TV on mobile, camera).

Wafer-Level Packaging of MEMS devices is also expected to grow fast, driven here too by the handset market and its fast increasing rate of integrated sensors (MEMS microphones, accelerometers, gyroscopes, pressure and magnetic sensors).

### ***Maturing WLP technologies sustain high market growth***

Early reliability issues have been largely improved with time, using new design rules and materials wafer level packaged parts now comfortably pass thermal cycling and drop qualification stress tests for consumer applications with extended die sizes up to 20mm<sup>2</sup>. Concurrently the market matured as more WLP assembly service providers entered the market. More customers gained confidence in these technologies and tier 2 handset manufacturers also recently started to buy and mount WLCSP solutions on their boards. Besides offering unequaled geometry benefits of small footprint and "thinness", WLCSP has become cost competitive with QFN, its main package platform competitor in handsets. This cost benefit now paves the way for the adoption of WLCSP by more consumer end user applications like netbooks, notebooks, gaming consoles, MP3 players and digital still cameras. Some WLCSP devices can also be found in automotive applications, which may well represent a future growth sector for WLP.

### ***A likely capacity shortage of 300mm WLCSP in the coming months***

It appears that during the recent economic downturn, the semiconductor packaging industry as a whole failed to anticipate this demand and did not plan sufficient WLCSP production capacity for the coming months. In particular, a shortage of 300mm wafer capacity for WLCSP is very likely to occur during the next quarters. However, significant investments are being made by a few industry leaders to develop future WLP technologies, like fan-out WLCSP or chip embedding, which will extend the reach of WLP to larger ICs and enable the combination of small size chip-scale packaging with low profile 3D System-in-Package.

In this WLP- 2009 report, you will find detailed technical and market status and forecasts on WLP technologies and applications. Market figures and growth rates are provided in units and wafers for each market segment over the 2008-2013 period. Numerous application examples are given, recent technical developments and options are detailed, and industry-wide technology roadmaps are presented.

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## **Wafer Level Packaging report**



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For special offers and the price in dollars, please contact David Jourdan ([jourdan@yole.fr](mailto:jourdan@yole.fr) or +33 472 83 01 95)

### **Other Advanced Packaging reports**

- **IPD Market Report 2009, Technologies, Applications, Markets & Players:** First complete study on Thin Film Integrated Passive & Active Devices. It exhaustively lists the existing and upcoming technologies and applications for IPDs. The report not only describes the market and the associated technologies deep inside the applications, but it also provides a broad overview of the thin-film IPD market and its forthcoming growth opportunities.
- **Memory Applications, Packaging & Integration Trends 2009:** New study aims at answering the following questions: What are the end applications driving the use of 3-D integrated memories? Who are the key players doing it? How will it happen? When will the market ramp up? What is the impact of the current economic turmoil? How big is this 3-D memory market going to be and at which conditions? How will 3D TSV technologies boost new applications and drive the growth of flash and DRAM market?

### **About Yole Développement in the Advanced Packaging industry**

From technologies to market, we help our clients to develop their business in the Advanced Packaging industry. Our commitment is to facilitate market access for innovative technologies, equipment and materials.

We study comprehensive technology, market and value chain analysis of the semiconductor packaging industry throughout the many available packaging platforms, from equipment and materials down to the end-user applications.

Yole Développement works worldwide with the key industrial companies, R&D institutes and investors in order to help them to understand the markets and technology trends. We take into account the complete value chain in our analysis, from materials and equipment business to device and system manufacturers and final users.

Yole is working with its customers at every stages of the development, from R&D to industrial development, from initial ideas to market launch of finished products.

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