



**Global and China CMOS Camera Module
Industry Report, 2011-2012**

Mar. 2012

STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

REPORT OBJECTIVES

- ◆ To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- ◆ To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- ◆ To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- ◆ To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- ◆ To help company to succeed in a competitive market, and

METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications.

Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

INFORMATION SOURCES

The primary information sources include NBS(National Bureau of Statistics of China), Wind, and Ministry of Industry and Information Technology of the P.R. China etc .

Abstract

The CMOS camera module is mainly composed of four parts: CMOS image sensor, Lens, Camera module and VCM.

CMOS image sensor offers the highest price among the four parts, with the cost roughly accounting for 30-50% of the entire CMOS camera module.

In 2011, the blockbuster in the CMOS image sensor industry was that Sony defeated Omnivision and won the iPhone 4S 8 megapixel main camera orders from Apple.

Omnivision has been the partner with Apple for many years. But sure enough, Sony technically outperforms Omnivision owing to its professional DSLR-based CMOS image sensor technology that ensures better image quality. iPhone 4S employs Sony's IMX145 image sensor with 1.75- μm structure and 90 nm manufactured process as well as ceramic package using flip chip and gold stud ball technique.

Definitely, the next-generation iPhone will still apply the image sensors made by Sony. The choice made by Apple is out of consideration for goods supply capability apart from the image quality. Omnivision, as an IC design company, is only responsible for the design of CMOS image sensor and designates the Taiwan-based TSMC as its sole OEM. Unlike Omnivision, Sony can conduct independent production, possessing four 8-inch wafer fabs.

TSMC, the world's largest wafer foundry, enjoys the market share nearly 50%, with the share in high-end market exceeding 80%. Moreover, Omnivision is not the VIP customer of TSMC, so it will very likely keep Omnivision at bay when TSMC suffers capacity shortfall. On the supplier list published by Apple in 2012, Omnivision is not included. Thus, there is high possibility that Apple's new-generation iPad camera module has employed CMOS image sensors made by Samsung or Sony.

For Sony, the identification from Apple generated great advertising effect. Many industrial pioneers have been attracted to order CMOS image sensors from Sony. In 2011, Sony enjoyed a market share of around 12% in mobile phone CMOS image sensor industry, and the figure in 2015 is expected to be 30%.

In the lens domain, all manufacturers are confronted with profit straits. This is a labor-intensive industry and veteran employees are more than ever in shortage, which is especially obvious in the production bases located in Chinese mainland. On the one hand, the labor cost is increasing; and on the other hand, the raw materials upstream saw price hike in 2011. By contrast, the lens below 8MP witnessed drop in price because of tough competition.

In 2011, the revenue of medium-and small-scale lens manufacturers fell to varied extent, with their profits plummeting. But it was not the case for Taiwan-based Largan Precision and Genius Electronics Optical, both of which saw soaring increase in revenue. The two firms contracted all the lens business for Apple's camera module. In particular, Largan Precision dominated the high-end market, while Genius Electronics Optical occupied middle-and low-end market. Genius Electronics Optical, the revenue of which grew by 136% in 2011, is the leading iPad camera module lens provider and the only supplier of iPhone VGA camera module lens. Nonetheless, the gross margin of the two declined.

In the camera module field, benefiting from "Apple effect", the business of LG Innotek, as the major provider of camera module for Apple, grew by more than 100% compared to less than 10% in the entire industry in 2011. The three camera module suppliers approved by Apple include LG Innotek, Sharp, and Primax.

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Sharp, also as the major supplier of Nokia, is the second supplier of Apple. For the Taiwan-based Primax Electronics Ltd focuses on low-end products. Furthermore, Vistapoint under Flextronics once served as Apple's supplier. But the rising wages in Chinese Mainland forced it to sell its plant located in Zhuhai and narrow the business scale in March 2012.

Vistapoint has been excluded in the supplier list published by Apple in 2012.

Operating Revenue of Leading CMOS Camera Module Manufacturers, 2011

Unit: Million USD	2010	2011
FOXCONN	1,298	1,228
SEMCO	580	704
SHARP	360	386
LG-INNOTEK	508	1,098
VISTA POINT	208	188
LITEON	278	413
BYD	160	170
TRULY	98	108
CHICONY	366	355
PRIMAX	198	276
TOSHIBA	502	478
STMICRO	456	508
OTHERS	188	128

source: Global and China CMOS Camera Module Industry Report, 2011-2012

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