



**Global and China CMOS Camera System
Industry Report, 2016-2020**

Feb.2017

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 Company Reports, and National Bureau of Statistics of China etc.

Abstract

Global and China CMOS Camera System Industry Report, 2016-2020 covers the following:

1. Analysis of CMOS Image Sensor (CIS) Industry and Market, with 7 vendors involved.
2. Analysis of CMOS Camera Lens Industry and Market, with 14 vendors involved.
3. Analysis of CMOS Camera Module (CCM) Industry and Market, with 24 vendors involved.
4. Analysis of Mobile Phone Market and Development Orientation of Mobile Phone Camera

In 2015, the global CCM (CMOS Camera Module) market size reported USD16.611 billion, up 3.8% from a year earlier but the lowest growth rate since 2010. In 2016, as the shipment of Apple phones with the highest single price of CCM fell, the world CCM market was at low ebb and down 0.5%. Due to the dual-camera stimulus in 2017, the global market rebounds substantially with the growth rate of 4.3% and the size estimated to be USD17.232 billion in 2017 and USD18.512 billion in 2020.

In 2016, Chinese manufacturers made remarkable achievements, while South Korean counterparts saw a drop or slight rise in revenue due to their heavy reliance on Apple and Samsung. Among Chinese players, Q-Tech enjoys the highest growth rate up to 84.5%, followed by Truly, both of which benefited from the outstanding performance of big customers OPPO and VIVO.

It is anticipated that monochrome dual-camera with same pixel will be the mainstream for smart phone brands except Apple in the future, as it is more affordable and can improve nightscape significantly (visible effect betterment for consumers), while Apple will persist in dual-camera design enriching depth of focus. Smart phones tend to be highly homogenized. Although they are still not quite satisfied with the dual-cameras, consumers are more impressed with dual-cameras than mono-camera. So, dual-camera is expected to be a standard configuration in high-end smart phones, and the penetration rate till 2020 would be as high up to 30-40%.

In 2016, the CIS (CMOS Image Sensor) market size approximated USD10.516 billion, rising by 5.6% from a year ago, but with an obvious fall in the speed of growth compared with the growth rate of 13.5% in 2015, mainly because medium- and high-end products are monopolized by Sony and the manufacturers in low- and medium-end fields are hard to break through the technological barriers and do nothing but hit the price war even in the vehicle field. Although influenced by factors like the Earthquake and the Appreciation of Japanese Yen, Sony still monopolized the medium- and high-end fields by dint of its overwhelming performance superiority and saw an upsurge of 32.9% in its revenue in 2016; by contrast, other players excluding Panasonic and Hynix saw decline. It is expected that, in 2017, the CIS market will grow 4.0%, Sony will see a growth rate of at least 10%, and most others will continue to suffer losses. In spite of being not much expected, the mobile phone market is still the most important market and Sony still monopolizes the high-end mobile phone market.

In 2016, Largan Precision's revenue dropped for the first time over the ten years due to its excessive dependence on Apple's orders, but Largan saw its gross margin further rise from 57.4% in 2015 to 66.2%, showing the strengthened technical competence. Sunny consolidated its hegemony in Chinese market with its revenue surging 52% and gross margin rising from 32.5% to 38.2% (in the first half of 2016), still far behind Largan's but space left for improvement. Largan earnestly draws lessons from heavy reliance on Apple and actively develop new customers, which poses great pressure on Sunny. Currently holding a 33% market share and ranking first in the vehicle camera field worldwide, Sunny is probable to be challenged by Largan and S.Korean Sekonix in the future.

Ranking of CCM Vendors by Revenue, 2010-2016

| Unit: Million USD | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|
| LG-INNOTEK | 508 | 1,098 | 1,475 | 2,304 | 2,608 | 2,674 | 2,502 |
| SHARP | 653 | 774 | 790 | 1,037 | 1,290 | 1,975 | 1,857 |
| SEMCO | 580 | 737 | 1,448 | 1,893 | 1,550 | 1,631 | 1,708 |
| Sunny | 158 | 186 | 380 | 713 | 1,105 | 1,319 | 1,580 |
| O-FILM | | | | 90 | 446 | 884 | 996 |
| LITEON | 278 | 413 | 776 | 1,108 | 1,251 | 1,002 | 938 |
| Cowell | 70 | 323 | 528 | 814 | 887 | 980 | 810 |
| Q-TECH | | 40 | 102 | 228 | 355 | 323 | 596 |
| PRIMAX | 198 | 276 | 368 | 490 | 495 | 515 | 563 |
| FOXCONN | 902 | 1,011 | 857 | 703 | 610 | 520 | 530 |
| Patron | 90 | 194 | 560 | 704 | 501 | 521 | 530 |
| MCNEX | 130 | 165 | 155 | 271 | 389 | 463 | 433 |
| TRULY | 98 | 108 | 151 | 292 | 332 | 350 | 423 |
| SONY | | | | 390 | 480 | 420 | 390 |
| CAMMSYS | 124 | 167 | 233 | 345 | 376 | 375 | 314 |
| SAMSUNG Fiberoptic | 310 | 320 | 362 | 350 | 360 | 320 | 310 |
| Powerlogic | 90 | 156 | 170 | 246 | 288 | 343 | 267 |
| CHICONY | 366 | 425 | 437 | 355 | 362 | 276 | 234 |
| STMICRO | 597 | 615 | 460 | 360 | 280 | 220 | 210 |
| VISTA POINT | 208 | 188 | 210 | 200 | 160 | 210 | 190 |
| TOSHIBA | 502 | 478 | 460 | 371 | 310 | 220 | 160 |
| OTHERS | 1,688 | 1,538 | 1,628 | 1,283 | 1,210 | 1,070 | 980 |

1 CMOS Camera Module Industry

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- 2.5.1 Parallel Dual Camera with Same Pixels
- 2.5.2 Stereo Camera with Different Pixels
- 2.5.3 Monochrome Dual Camera with Same Pixels
- 2.5.4 3D Scanner Dual Camera

3 CMOS Image Sensor Vendors

- 3.1 Samsung Electronics
- 3.2 OmniVision
- 3.3 Aptina (ON-Semi)
- 3.4 Sony
- 3.5 Toshiba
- 3.6 Galaxycore Microelectronics
- 3.7 SuperPix Micro Technology

4 Optical Lens Vendors

- 4.1 Largan Precision
- 4.2 GeniuS Electronic Optical (GSEO)
- 4.3 Asia Optical
- 4.4 Newmax Technology
- 4.5 Ability Opto-Electronics Technology
- 4.6 Kantatsu
- 4.7 Hitachi Maxell
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- 4.9 Sekonix
- 4.10 Korea Optical
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- 4.12 Glory
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- 4.14 Digital Optics

5 Camera Module Vendors

- 5.1 Chicony
- 5.2 Vista Point Technologies
- 5.3 Hon Hai
- 5.4 LG Innotek
- 5.5 Mitsumi Electric
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