

Global and China Display Driver IC Industry Report, 2013

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Abstracts

The report includes the following aspects:

1. Display driver IC market
2. Flat panel display market
3. Ten display driver IC vendors
4. Eleven small and medium-sized display and driver IC vendors

The current decline in the ASP of driver IC is attributed to many factors, including:

The display driver IC integration density continues to rise

Driver IC is made by 12-inch fabs with the 90-nanometer process at high output efficiency

Many vendors are willing to adopt RAM-Less driver IC in order to save costs.

In 2013, the display driver IC market will see the highest growth rate of 14.4% in the past five years and value USD7,111 million. The growth rate is expected to be 8.0% in 2014. The substantial growth is mainly boosted by mobile phones, whether smart phones or ordinary phones, whose screen resolution is soaring, which makes the high-end driver IC shipment surge.

Compared 1,040 models of mobile phones launched in 2012 with 759 models unveiled from January 1, 2013 to September 15, 2013, the share of FHD jumped the most

quickly from 0.7% in 2012 to 17% in 2013. The ones with the pixel matrix of above 400ppi only accounted for 0.5% in 2012, but up to 12% in 2013. The proportion of the ones with over 300ppi ascended from 12% in 2012 to 28% in 2013.

Due to serious homogeneity, the competition among mobile phones is mainly reflected in screen, casing and camera pixel, especially screen. The formerly extraordinary screen looks inferior now. Even if the development of high-end smart phones slows down, the display is upgrading amazingly. Currently, LGD has developed a prototype of WQXGA (2560×1440) cell phone screen. Japan JDI also has the ability to develop WQXGA panels.

5.5-inch WQXGA corresponds to 534PPI, and 6-inch one to 489PPI. The mobile phones with WQXGA screen will be available at the end of 2013. Qualcomm and Mediatek have developed corresponding 8-thread MIPI interface which supports a transfer rate up to 9.6Gbps and a frame rate of 60Hz. In this case, 3D effects will be achieved without the help of any other device. In 2014, a number of flagship mobile phones will use WQXGA panels with the expected shipment of 130 million units.

WQXGA driver IC can be made using 8" 0.11 μm or 12" 90 nm process, but RAM should be used as little as possible, if not, the 12-inch 55nm process is required for reducing size and power consumption. However, TSMC and UMC can gain 55 nm easily. Renesas, Novatek and Samsung are developing WQXGA driver IC which will be launched in Q3.

Another change in mobile phone display lies in the wide application of LTPS technology. More than 99% of 300ppi (or above) panels adopt LTPS technology. The LTPS utilization will reach 38% in 2014 and 52% in 2015. But LTPS needs huge investment, so Taiwanese vendors who ever suffered losses for many years do not prefer LTPS. INNOLUX and AUO are more interested in IGZO. Japanese and Korean companies are increasing LTPS capacity. Apple's largest mobile phone display supplier and the global largest LTPS vendor Japan JDI put the world's largest LTPS production line into operation in June. LGD also started one six-generation LTPS production line in August to follow JDI. Sharp kept an eye on both IGZO and LTPS, but did not expand its LTPS capacity.

Most high-end smart phones tend to use IN-CELL touch screen, while OGS is confined to the lower end. In the future, OGS may withdraw from the market as IN-CELL capacity is improved. Apple's iPhone5S still sticks to IN-CELL, and Huawei, Xiaomi and other Chinese vendors of high-end models also prefer IN-CELL touch screen, which means

Display Driver IC and Touch Controllers will be combined just like Apple's iPhone5S.

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