

## Global and China Flat-Panel TV IC Industry Report, 2009-2010



The merger of Trident and NXP TV Business Division boasted the biggest event in flat-panel TV IC industry in 2009. Trident was once the leader in the flat-panel TV industry for many years, but it lost its competitiveness due to a bad decision-making in 2006. In 2006 when the network media player made its debut, video decoders were forced to provide support for such coded formats of network video as H.264. Accordingly, many manufacturers in this regard try to integrate video processing with H.264 decoding. However, Trident attached highly importance to 100/120 Hz-MEMC technology, integrating video processing with MEMC. With the lapse of time, network media players has almost become the standard configuration of flat-panel TV, while 100/120 Hz frequency doubling can be only applied in high-end TV and can be realized through additional FRC frequency multiplier. And the solution is more affordable than that of Trident.

In addition, 200/240 Hz has now become a mainstream of high-end flat-panel TV and it can be obtained by two additional frequency multipliers, more flexible and affordable. This resulted in the annual revenue of Trident plummeting to less than US\$150 million from US\$270 million at its peak. By contrast, its counterparts Morningstar and Mediatek grasped the chance to grow big, tied for the first place across the globe.

It is beyond doubt that the new Trident will render the patent power. The new company holds MEMC technology (once owned by Philips and NXP), which is the core functioning to the quality of image in digital TV market. Before the merger of Trident and NXP, only Mediatek and Trident were officially authorized with MEMC technology by Phillips. But the new Trident has the right to decide whether to authorize other companies with MEMC technology or not then and whether the authorized companies can continue their ownership of MEMC technology when it is due. Morningstar is apparently excluded from being authorized by Trident, and Mediatek is also with great possibility of being excluded.

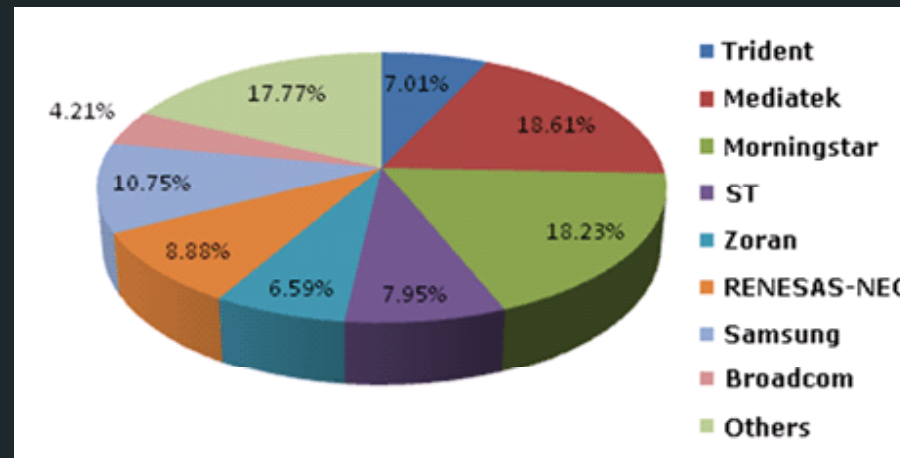
Samsung, the world's largest flat-panel TV manufacturer, began to conduct independent R & D of video processing IC starting from 2007, a move resulting in sharp deduction of IC purchasing from Trident. Yet, considering the patent problem and powerful strength of the new Trident, Samsung turned back to order products from Trident in the second half of 2009.

In 2009, the new entrants in flat-panel IC industry began to enhance their strength in a progressive way. These companies including Novatek, Himax and Realtek, are the global top 3 IC manufacturers of large-size TFT-LCD drivers. With rich experience in LCD Control IC industry, Novatek and Himax provide main chips for small-sized flat panel TV for the OEM of TPV Technology Limited. Realtek, in particular, as the world's first IC producer involving in sound cards and network cards, has accumulated rich experience in media player field. In the networking era, Realtek will enjoy huge growth potentials. Micronas, a Swiss enterprise in the field, retreated with depression and sold its frequency multiplier business to Trident in 2009, with the aim of going all out for expanding auto electronics market.

On April 1st, 2010, NEC and Renesas officially merged. Since the most advanced MCU technology of Renesas and powerful MPEG algorithm of NEC, Sony will be driven to increase its purchasing for flat panel TV from the new merged company. Moreover, LG and Morningstar will enhance their joint development of IC.

Although Mediatek and Morningstar have almost eroded into the global TV supply chains of all brands, their products converge in middle- and low-end fields and suffer from price drop. In virtue of its poor support for the cutting-edge 4 frequency multiplications, the high-end products failed to take any advantage. Although Morningstar played a role in LG high-end TV, it was a fruit cooperated by LG and Morningstar. LG, the main role-player of the two, provides frequency multiplication IC. High-end products are bound to become popular. With the patent threat, Morningstar and Mediatek will progressively suffer from difficulties.

### Market Shares of Global Video Processing Manufacturers for Flat-Panel TV, 2009



3D TV and LED Backlight TV are most popular in flat-panel TV field, a good chance for IC manufacturers to promote their business performance. The best technology solution for 3D TV and LED backlight TV is to better the frame rate of 200/240 Hz frequency multiplications. Other leading enterprises in this field such as Phillips, Sony, Toshiba, Sharp, Samsung and LG all develop their unique algorithm solutions, although there are litter differences with MEMC in nature. But Zoran is an exception. 200/240 Hz frequency multiplications call for extra memories equaling 4 times, which will help the enterprises in TV memory gain benefits more or less. They are represented by Taiwan manufacturers in this regard, EPLIDA and HYNIX.

It will further cut the cost if frequency multiplication function would be integrated in the panels of LCD TV, and Samsung and LG Display has began to conduct the research, endeavoring to integrate frequency multiplication in liquid crystal TCON panel. Nevertheless, TV manufacturers prefer external IC since they think this move will degrade flexibility. At present, LG, Trident and Zoran all have their independent IC support systems.

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