



**Global and China Flexible Printed Circuit
Board (FPCB) Industry Report, 2010-2011**

May 2011

This report

- ◆ **Analyzes the segmentations of FPC Market.**
- ◆ **Focuses on the FPCB industry chain and development.**
- ◆ **Highlights the operation of FPCB enterprises and FCCL manufacturers.**

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Abstract

2010 is a bumper year for the Flexible Printed Circuit Board (FPCB) industry, with the market forcefully pulled by smart phones and tablet PCs. FPCB is the best choice for the connection of the large number of components used by the smart phones and tablet PCs with complex functions.

An ordinary mobile phone only needs 3-5 FPCBs, a smart phone needs 6-8, and a smart phone with dual lens and multi-modules, such as iPhone 4, needs 12. iPad 2 has added front and rear lens, which means the addition of two FPCBs. Smart phones and tablet PCs will continue to drive the FPCB market in 2011.

However, the application fields of FPCB are not only mobile phone and tablet PC, but also include hard drive, optical disc drive, digital camera and DV. These traditional fields have been saturated due to intense competition, and the market potential is limited.

Due to the fierce price competition, the FPCB revenue didn't grow substantially, though the overall FPCB shipment increased significantly. The FPCB market size approximated USD8.7 billion in 2010, up 13% year on year.

In 2010, Japanese FPCB manufacturer Nippon Mektron secured its global No.1 position through increasing its revenue by 35% year on year to USD2.22 billion. It's a major supplier for Nokia, Apple, Sony Ericsson, and hard drive giants like Western Digital and Toshiba.

M-FLEX is a major supplier for RIM and Apple, from which it gets 85% of its revenue. Japanese FUJIKURA has been bogged down into a price war and suffered performance decline, because it's inferior to Nippon Mektron in technology due to its focus on optical communications and connector businesses and less effort in FPCB.

Sumitomo Electric and Sumitomo Bakelite are large FPCB makers, but FPCB business is not a core business for them, and the clients are hard drive, optical disc drive, digital camera, and DV manufacturers.

In 2010, they didn't see much growth in these fields, meanwhile, they faced the price pressure from Taiwanese enterprises, so there was little change or decline in the performance. Japanese Nitto Denko and SONY Chemical Corporation had the same experience.

FAT, a subsidiary of Hon Hai, is a major supplier for Apple, therefore FAT boasts remarkable performance, but it is not publicly traded. Taiwanese FLEXium Interconnect. Inc is also a major supplier for Apple.

INTERFLEX, SI FLEX, FLEXCOM and BHflex, the top four FPCB manufacturers in South Korea, all achieved substantial growth. INTERFLEX exceeded unlisted SI FLEX to become the largest FPCB manufacturer in South Korea. Their main customers, without exception, are Samsung and LG.

Mainland Chinese enterprises are in large numbers but of small sizes. Zhuhai Topsun Electronic Technology Co., Ltd. is the largest, but it failed to be approved by China Securities Regulatory Commission for going public in 2010. The largest FPCB manufacturer in Chinese Mainland is MFS Technology (Hunan) Co., Ltd. controlled by MFS Technology Singapore.

In the upstream FCCL market, Nippon Steel, the 2L FCCL leader, initiated price competition and occupied 65% of the market. Cornered by 2L FCCL, DuPont and RPGERS retreated from the 3L FCCL market. However, despite the ferocious price competition, the revenue and profits of FCCL manufacturers were far more than those in 2009 due to the soaring FPCB shipment.

PI film is another upstream product of FPCB. There has emerged a trend to replace PI Cover Layer with Ductile Solder Mask in the FPCB industry. The FPCB plants in East China and South China applied the cost reduction solution as early as the end of 2009, in knock-off mobile phones at first. Compared with PI Cover Layer, Ductile Solder Mask exhibits better line coating protective effect, lower cost, higher operating efficiency and equal resistance to breakdown voltage. The trend of replacement became more significant in the second half of 2010.

Global 24 FPCB Manufacturers by Revenue, 2010

| | Region | Revenue in 2010 (USD mln) |
|-------------------|------------------|---------------------------|
| MEKTRON | Japan | 2,220 |
| M-FLEX | USA | 878 |
| FUJIKURA | Japan | 799 |
| Sumitomo Electric | Japan | 661 |
| NITTO DENKO | Japan | 573 |
| FAT | Taiwan | 388 |
| INTERFLEX | South Korea | 356 |
| SONY CHEMICAL | Japan | 334 |
| CAREER | Taiwan | 314 |
| SI FLEX | South Korea | 301 |
| Sumitomo Bakelite | Japan | 228 |
| KINWONG | Hong Kong | 152 |
| ICHIA | Taiwan | 146 |
| FLEXIUM | Taiwan | 141 |
| FLEXCOM | South Korea | 131 |
| MFS | Singapore | 137 |
| PARLEX | Hong Kong | 108 |
| BHflex | South Korea | 100 |
| DAEDUCKGDS | South Korea | 68 |
| NEWFLEX | South Korea | 59 |
| TOPSUN | Chinese Mainland | 37 |
| NETRON | Chinese Mainland | 32 |
| AKM | Hong Kong | 27 |

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