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Chinese PCB Industry and the Association

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Abstract
The Chinese printed circuit industry has seen rapid growth in the past years, from barely nothing to more than 6.05 billion USD production value in 2003. The association of the industry, CPCA, also has seen similar growth. This article introduces the development and status of Chinese PCB industry in the past and today in the world as well as the development and functions of China Printed Circuit Association, both with opportunities and challenges in the new era.

In the past year, more than 200 national grade 1 associations were checked, consolidated and cancelled. Only about ten graded 1 associations Class were approved for registration. Fortunately, CPCA is one of the ten associations approved by the government.

After being audited by the Ministry of Information Industry and State Council Meeting, CPCA was approved by the Civil Affairs Department as national grade 1 association with independent corporative legal qualification.

Promoted by the development of PCB industry, CPCA is catching much recognition from government continuously.

The PCB industry in China started in the later 1950's. At that time, Wang TieZhong, Li ShiHao started trial-production of the single-sided printed board for semiconductor. And Yao Shou Ren began to study the double-sided printed board with PTH (plated though hole). The China First PCB Academic Convention was held in 1963.

Later, the first generation of PCB Specialists represented by Wang TieZhong, Yao ShouRen, Gu ChangYin were born.

In the end 60's and the early 70's, the first batch of Chinese PCB- single-sided printed boards with paper base for four tubes semiconductor were manufactured by complete handwork led by Sha An'cai. In the early 80's, to match the production of homemade color TV, Shanghai No. 20 Radio Factory imported the first single-sided printed board automatic production line of China from Japan.

In 80's, Shanghai No.20 Radio Factory was one of the leading enterprises of China PCB industry, but the maximum annual production value was less than 100 million RMB. At the same time, some state enterprises such as Dalian No.14 Radio Factory and Shennan Circuit led by Yan Hai Zhong, Yangzhou Shuguang Factory appeared.

Later, private PCB enterprises and school PCB plants represented by Chen JianZhi came up like bamboo shoots after a spring rain. A large amount of PCB enterprises in villages and towns such as in Kunshan, Suzhou and Canghzou areas were formed.

In the middle of 1980s, some joint-investment companies represented by China Circuit Technology (Shantou) Cop. lead by Lin ChengChuan came up in China. Dalian Pacific led by Qu LianHu, Three Printronics companies in Tianjin, Shanghai and Guangzhou also set up.

In June 1990, CPCA was established. It's a pity that our association was only registered as national grade 2 associations because of scale and less recognition by all levels of national government. At that time, nearly all state-owned, collectively owned and JV enterprises, about 100 in number, joined the association. They became the initial members of CPCA.

There was no accurate statistics to show the PCB production value in 1990. By estimation, it could not exceed 20 billion RMB.

With reform and opening-up in China, all enterprises became market oriented. The PCB industry in China is keeping in line with the electronic information industry development pace. Simply in a decade, an industry with annual production value exceeding 50 billion RMB was formed. It continues to gains more and more recognition from China and abroad.

In 2003, PCB industry in China brought us two breakthroughs-PCB production value exceeded US $6 billion and the total. amount of imports and exports of Chinese PCB broke US$6 billion for the first time. China became the second largest PCB manufacturing country.

The status of our industry is seeing an unprecedented rise at the same time as our great motherland. (See Figures 1-10.)

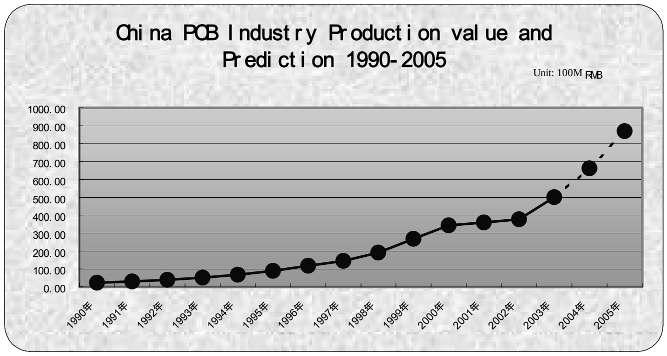

Figure 1 – Production Value

Looking to the history and prediction of the production value trend from 1990, the growth is very strong.

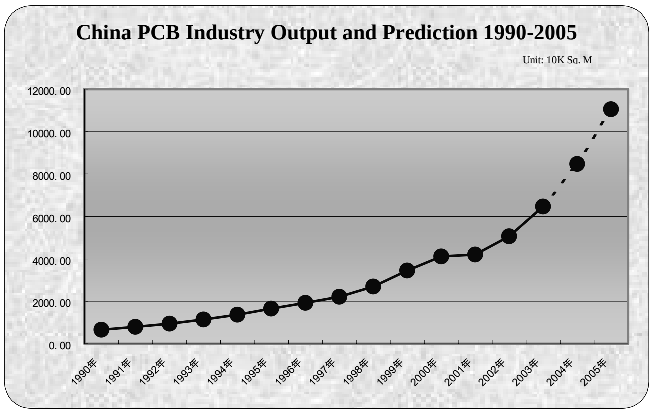

Figure 2 – Output

China is becoming the world production center and the output is getting bigger.

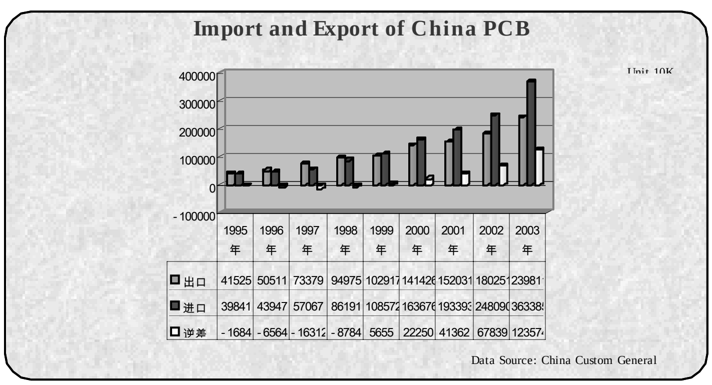

Figure 3 – Import and Export

A large percent of products are imported since the domestic market demand is strong.

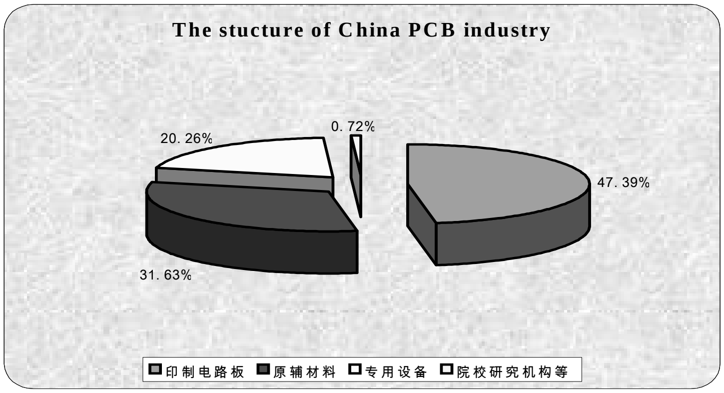

Figure 4 – Composition

Here is the composition of China PCB industry divided by PCB producers, equipment manufacturers, material suppliers and others.

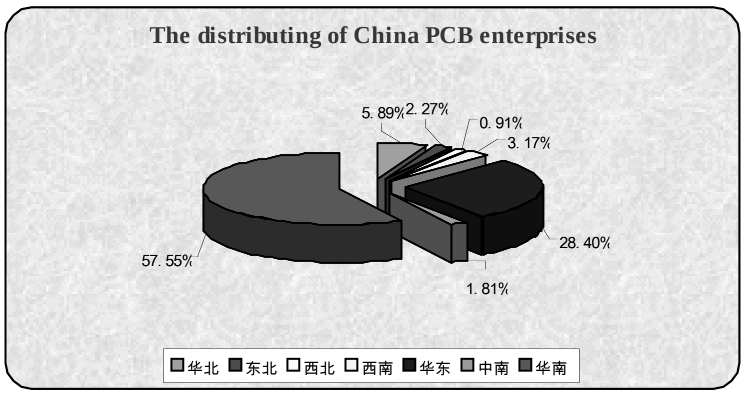

Figure 5 – Distribution of PCB companies

From the above figure, South China and East China take the most part in geographic location.

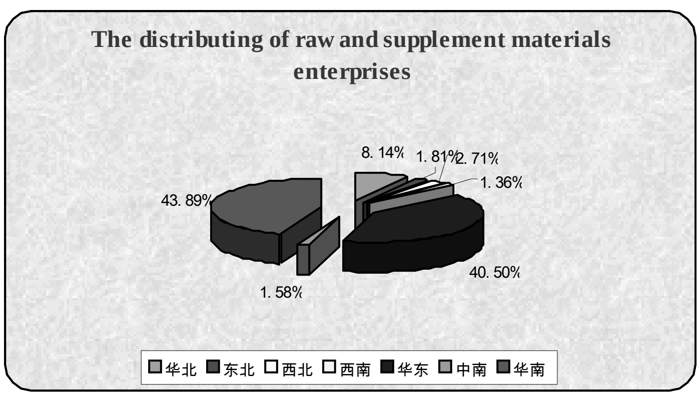

Figure 6 – Distribution of material suppliers

The concentration effect is obvious for material suppliers too.

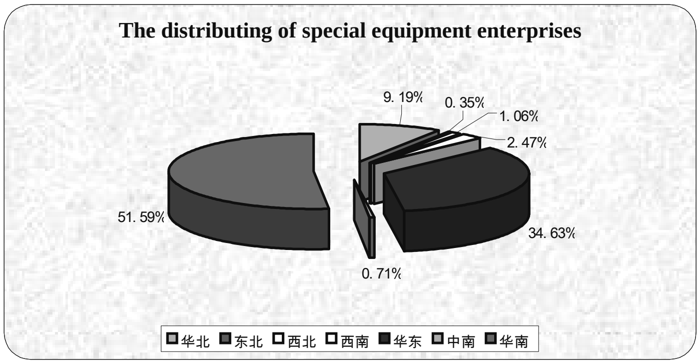

Figure 7 – Distribution of equipment producers

Although Chinese equipment producers see a large gap compared to foreign competitors, they are growing fast in South China and East China.

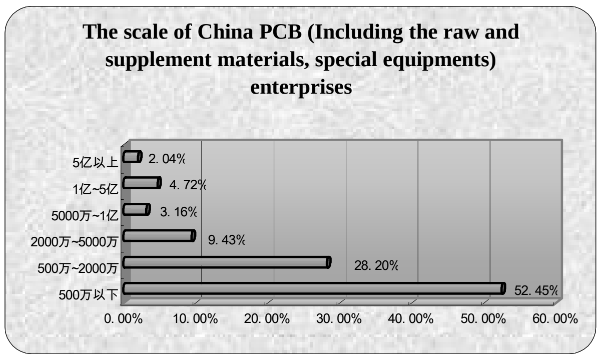

Figure 8 – Scale according to production value

From the figure, most producers are small and medium sized. The number of producers is big and there is much room for development and improvement.

China PCB Industry Output and Prediction 1990~2005

Unit: 10K Sq.M

	1990年	1991年	1992年	1993年	1994年	1995年	1996年	1997年	1998年	1999年	2000年	2001年	2002年	2003年	2004年	2005年
Single-sided	—	—	—	—	—	1170	1240	1300	1397.38	1533.85	1664.88	1686.5	1821.42	2039.99	2284.79	2467.57
Doulbe-sided	—	—	—	—	—	362	410	450	586.53	629.27	697.03	676.12	778.6	856.46	942.11	1036.32
Multilayer	—	—	—	—	—	124	280	460	686.31	1202.41	1623.25	1648.29	2135.29	2989.41	4185.17	5649.98
Flexible	—	—	—	—	—	—	—	—	25	86	123.24	189.64	326.35	587.43	1057.37	1903.27
Total	658.14	791.53	951.95	1144.89	1376.93	1656	1930	2210	2695.22	3451.53	4108.4	4200.55	5061.66	6473.29	8469.44	11057.14

Figure 9 – Production value by layer count

China started the mass production of single and double sided boards. Presently, multilayer board production is taking the leading position, including HDI and Flexible printed circuit boards.

China PCB Industry Producton Value and Prediction 1990~2005

Unit: 100M RMB

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Single-sided	—	—	—	—	—	20.84	20.46	20.80	19.56	21.47	22.48	21.18	20.37	22.41	24.42	26.38
Doulbe-sided	—	—	—	—	—	43.10	41.00	40.50	51.04	52.10	59.25	56.43	56.73	61.27	65.56	69.49
Multilayer	—	—	—	—	—	26.06	56.00	82.80	120.79	186.25	251.60	264.86	270.76	365.53	486.15	636.86
Flexible	—	—	—	—	—	—	—	—	0.50	7.83	10.48	17.80	30.29	51.49	84.96	135.94
Total	22.92	30.14	39.62	52.08	68.46	90.00	117.46	144.10	191.89	267.65	343.81	360.27	378.15	500.69	661.09	868.67

Figure10 – Output by layer count

It is clear that Chinese PCB output is keep fast growing. However, foreign countries especially Japan has the leading position in high-value added product production such as more than 30 layer PCB and rigid-flexible PCB.

Chinese PCB industry enjoyed very rapid growth in the past years, but mainly in production fields. There is still much rooms for improvement, especially in research and development area and in advanced the production and management fields.

PCB, raw and supplement materials for PCB and PCB special equipment made in China will show their development and capability all over the world.

The fast development of PCB industry brings the new requirements of association development and service. CPCA was approved as national grade 1 association, but that absolutely does not mean that we can be satisfied with onty that. On the contrary, this means that the new page was just opened and we are getting more and more responsibilities.

CPCA still has gap to meet the requirements of national grade 1 association of government. There’s a wide gap between CPCA and the international associations of the same industry. The service awareness, service ability and service level of CPCA are not in line with the requirements of developing Chinese PCB enterprises and the industry. There are large differences compare with Chinese government’s expectations. This asks CPCA to stand on the new level, recognize the new target, ask the new requirements, make greater efforts to climb the new peak from this now on.

After joint WTO, the enterprises of each country come into China in succession. Following them, the relevant foreign associations that want to compete with national association are coming to China to strive for the service market. The competition between associations is very fierce and cruel as if between enterprises. Suppose that an individual national enterprise is beat in competing with foreign enterprise, then loss is very small. But if the China association is broken down in competing with foreign association, the loss is serious to the whole industry.

As representative of China printed circuit and other related industry, CPCA must summon up the energy on the new starting point.

In recent years, every place of the world has seen the rapid development of China. The growth rate of the China electronic circuits industry is ranked No. 1 in the world. To meet industry development and enterprises requirements, many old concepts, thinking and ways of doing things must be evaluated again. We must change with the new situation and embrace innovations. Service concepts, service methods and service levels needs to be upgraded. Only innovation can bring us a future. Only constant innovation can bring us continuously developments. Innovation of service is the living base of CPCA.

After CPCA became the national grade 1 association, all levels of national government, especially the Civil Affairs Department and MII hold the CPCA higher expectations. The China electronic circuit enterprises hold the CPCA to these same expectations also. The CPCA is getting more recognition by both the government and the individual enterprises. The CPCA participates in many functional activities of government. Many enterprises hang the CPCA Member Board on the striking place of factory. Some enterprises print CPCA Member on the business cards.

The CPCA cannot let down the government's expectation, nor can the CPCA let down the enterprises' trust. In the next years, CPCA will exceed the expectations of both government and the China enterprises. We will climb up to a new level and exhibit a new image to provide better services to enterprises and government.

There are 4 new starts for us: New height, new start, new thinking and new image.

CPCA is striding forward from another beginning.