



Market Analysis Report: China's Electronics Industry

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EXECUTIVE SUMMARY

- China's electronics industry has played a major role in driving the growth of national GDP. Though the industry was impacted by the global economic crisis in 2009, opportunities are still rife as the industry continues to expand.
- Chinese government is a strong proponent of industry consolidation, which is pushing leading market players into dominant positions to lead the strategic development of the industry.
- Aside from consumer electronics, the sector is dominated by foreign-invested enterprises (FIEs), which are the primary owners of much of the core technologies used in production. Israeli firms can leverage their technological expertise to forge cooperative partnerships with domestic firms seeking advanced capabilities.
- Opportunities for Israeli firms in the consumer electronics segment include:
 - Frequency conversion technologies;
 - "Intelligent" electronic products;
 - Micro-SMD, particularly multilayer ceramic chip capacitors (MLCC), chip electrolytic capacitors, chip inductors, and integrated passive devices;
 - High-performance sensors, high-frequency components and small and special electrical machines;
 - High-end printed circuit boards and environmentally-friendly, copper-clad laminate materials;
 - Large capacity new and green batteries and high performance/low cost battery materials;
 - New electronic materials, including electronic-grade polycrystalline silicon materials, high performance magnetic materials and electronic ceramic materials.
- Opportunities for Israeli firms in the semiconductor segment include:
 - Technologies and products that can be used in applications for 3G telecommunications, "Internet of Things", automotive electronics, medical electronics and industrial electronics;
 - IC design for telecommunications, computers, network, digital audio, smart cards and industrial control;
 - 8-12 inch IC production lines and materials;
 - New IC assembly and testing technologies including Ball Grid Array (BGA), System in Package (SIP), Chip Scale Package (CSP), Quad Flat Non-leaded Package (QFN), flipchips, and Multi-Chip Module Package (MCM).
- Opportunities for Israeli firms in the flat panel display (FPD) segment are particularly promising in FPD for TVs. Though the FPD segment is developing in China, it still lacks technological capabilities, manufacturing equipment, and raw materials. Demand for FPDs is expected to increase given government stimulus plans and industry upgrading.

- Key stakeholders and potential customers able to influence Israeli technologies, components and services are:
 - China's Ministry of Industry and Information Technology (MIIT);
 - Top-tier international and domestic electronics companies, including Haier, Hisense, TCL, Konka, Gree, Midea, SMIC, Hisilicon, and BOE;
 - Some industry leaders in sectors such as automotive, real estate development, and healthcare.

1. GENERAL ELECTRONICS OVERVIEW

- China's electronics industry continues to play a major role in China's GDP currently, as it has in the recent past. Though the global economic crisis slowed the pace of industry development in 2009, the outlook in 2010 is quite promising.
- While imports and exports posted negative growth for the first time in 2009, trade activity began to rebound in November 2009.
- A combination of factors has driven industry growth in recent years. This includes strong domestic demand, positive government support, and technological development.
- As the industry continues to develop, the Chinese government increasingly emphasizes environmental protection and energy efficiency principles.
- The development of new technologies, including "Internet of Things", network convergence, and 3D TVs is gaining momentum in China.

1.1 MARKET OVERVIEW

China's electronics industry has developed rapidly since 2001, posting double-digit growth rates until the global economic crisis hit in late 2008. But as recovery picked up with help from the Chinese government's stimulus package, the industry began to gradually revive starting in the late half of 2009. Analysts predict the industry will grow by 6 percent in 2010. Official statistics show that in the first half of 2010, sales revenue of the electronics industry reached RMB 2.86 trillion (USD 420.6 billion)¹, increasing 23.8 percent year-on-year (y-o-y).

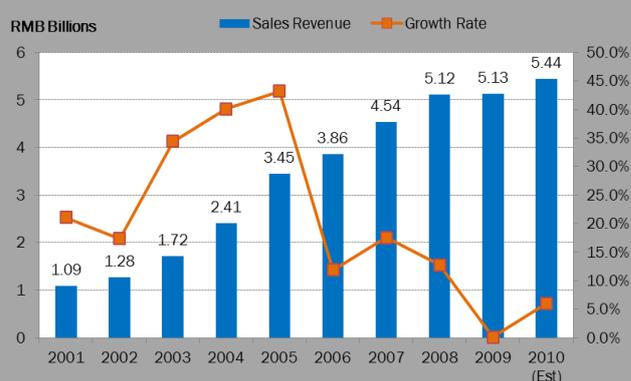
Furthermore, while the 2009 growth rate of sales revenue dropped to its lowest point in history (0.1 percent) it still plays an important role in China's growing GDP, contributing 10 percent to overall GDP growth in 2009.

Defining China Electronics Industry

Consumer electronics	Communication devices
Electronic components	Electronic materials
Photoelectric apparatus	Radar devices
Broadcasting/TV industrial devices	Computer devices/peripheral units
Electronic apparatus	Measuring instruments

Categorization by MIIT

Sales Revenue of Electronics Industry (2001-2010)

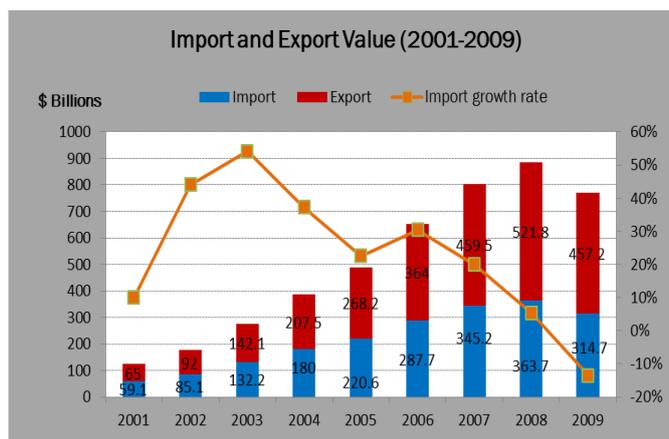


Source: MIIT

¹ The USD/RMB exchange rate is 1 USD = 6.62 RMB as of November 19, 2010.

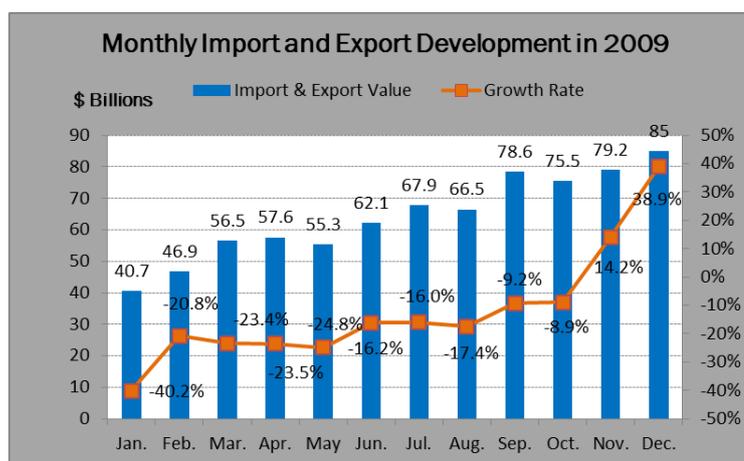
Electronics Trade

Trade from China's electronics industry comprised more than 30 percent of its overall trade in recent years, even during the global economic crisis. The import growth rate spiked after China's WTO accession in 2001, but gradually slowed as a result of the booming domestic electronics industry. In 2009, trade value of electronics comprised 35 percent of national foreign trade, totaling USD 771.9 billion.



Source: MIIT

As shown in chart at right, China's electronics imports were heavily impacted by the global economic crisis, declining for the first time in history, down 13.5 percent y-o-y. However, the import and export of electronics steadily improved month by month in 2009, finally generating positive growth in November 2009.

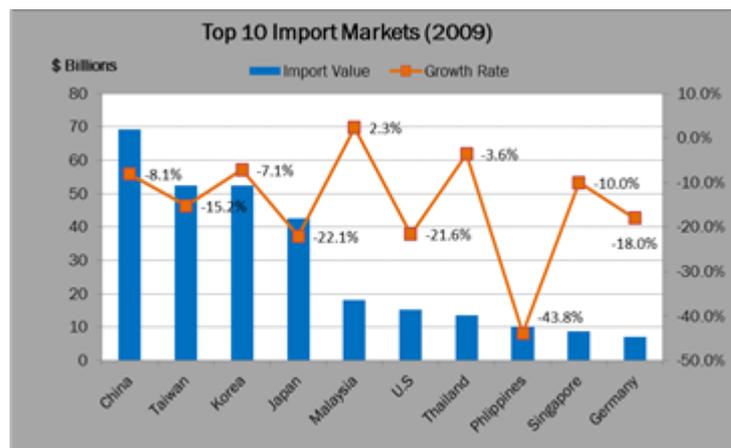


Source: MIIT

Top Five Electronic Product Imports (2009)				Top Five Electronic Product Exports (2009)			
No.	Products	Import Value (USD billions)	Growth (%)	No.	Products	Export Value (USD billions)	Growth (%)
1	Processors and controllers	70.95	-12.3	1	Portable computers	66.65	1.62
2	LCD panels	34.98	-20.68	2	Mobile phones	39.56	2.65
3	Other IC products	23.68	7.34	3	LCD panels	19.21	-14.14
4	Storage devices	21.76	-4.64	4	Mobile phone accessories	16.05	-10.85
5	Hard drives	12.31	1.03	5	Processors and control units	12.99	4.92

Electronic product imports decreased in 2009 by 7.7 percent down to USD 136.76 billion. The import of electronic components was USD 70.91 billion, down 22.9 percent; and the import of computer products was USD 44.91 billion, down 8.2 percent.

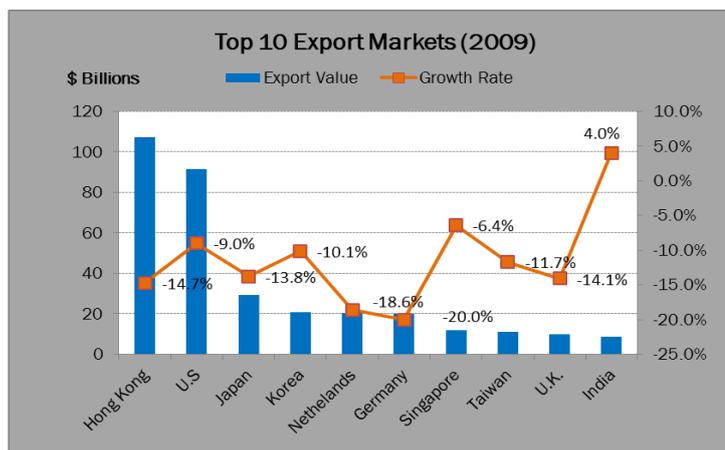
China imports electronics from many trade partners, including Taiwan, South Korea, Japan, The United States, and Germany (others shown in chart at right). The re-import² of electronic products still comprises an important part of electronics imports, mainly for the sake of favorable trade taxation. Taiwan, Korea, and Japan are still the top three countries of origin for imported electronics. Due to the financial crisis, the import value of most of the top 10 countries decreased in 2009.



Source: MIIT

Total export value of electronics in 2009 was USD 457.2 billion, representing a decrease of 12.4 percent. The export of electronics usually includes processing trade, assembling trade, general trade and intermediary trade. In 2009, processing trade of imported electronics still comprised a large percentage of China's electronics foreign trade, accounting for 70.9 percent of China's total electronics exports.

In 2009, China mainly exported electronics to Hong Kong, The United States, Japan, South Korea, Netherlands, Germany, Singapore, Taiwan, and India. The export value to the top 10 countries and regions accounted for up to 73.4 percent of overall export value of electronic products, equaling USD 334.54 billion. (See chart on the right)



Source: MIIT

Industry Drivers

A number of drivers enabled China's electronics industry to rebound after the global economic crisis. These include market demand, strong government support and technological development.

In China's domestic market, demand for electronics, such as home appliances, is particularly strong. Over 800 million people reside in China's rural areas. As the divide between rural and urban populations is shrinking and the rural areas are becoming more developed, there is a growing market demand and customer base for consumer electronics products.

² "Re-import" refers to importing goods into a country from which those goods had previously been exported.

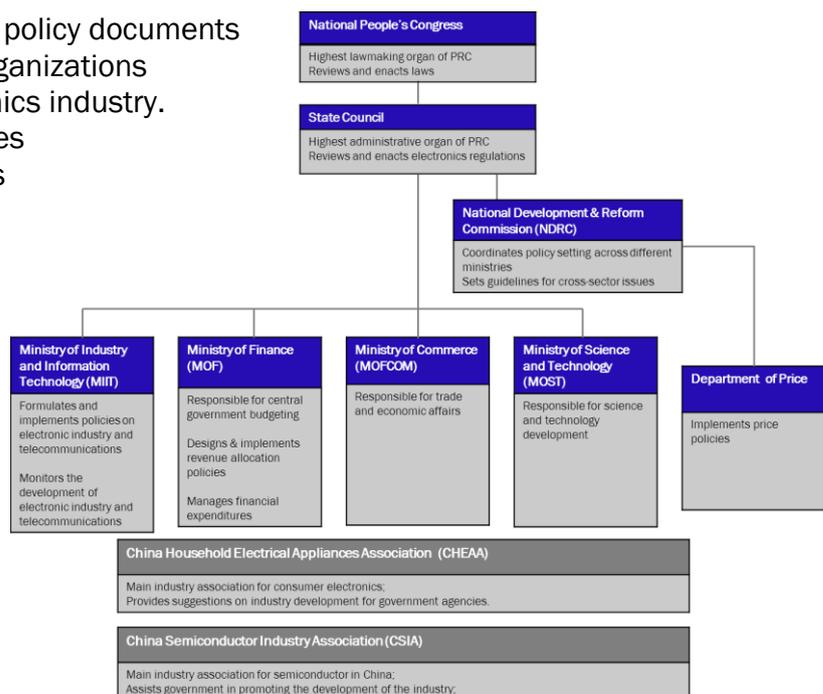
Also notable is the 2009 boom in China’s real estate market. Sales of commercial space reached 973 million sq.m., a 42.1 percent increase y-o-y. This explosive growth in the real estate market also drove up the demand for household appliances. The automobile industry also developed rapidly in 2009, which subsequently spurred the growth of demand for automotive electronics. Additionally in urban areas, electronic products have become more advanced, which has played an important role in the development of the electronics industry.

The Chinese government has boosted development of its electronics industry through a series of stimulus plans in 2009. These include “Home Appliances to the Countryside”, “Replace the Old with New” and “Automobiles to the Countryside” programs. These measures effectively stimulated demand for household appliances and automobiles in rural areas and greatly increased electronics sales in China. Keeping in line with its macro-development policy objectives of increasing energy efficiency, energy conservation, and emissions reduction, Chinese government regulations and subsidies have also fostered development in the electronics industry.

Lastly, China’s electronics industry has been fuelled by the innovation of high technologies. The development of 3G standard mobile phones, 3D TVs, the “Internet of Things”³ and the convergence of telecommunications, TV and radio networks has increased the demand for electronic products and relevant components.

1.2 REGULATORY OVERVIEW

This section outlines several key policy documents issued by central government organizations aimed at developing the electronics industry. The diagram to the right illustrates key central government agencies related to the development of the electronics industry.



³ In computing the “The Internet of Things” refers to the networked interconnection of everyday objects, products and industrial processes.

The 12th Five-Year Plan (FYP)

The central government released its draft of the 12th Five-Year Plan (2011-2015) on October 18; the final version is expected to be issued in May 2011.

Over the next five year period, China plans to enhance the global competitiveness of its manufacturing industry by optimizing industry structure and eliminating outdated production capacity. Special attention will be paid to improving indigenous innovation capacity within the electronics industry. The draft notes that China will strive to make breakthroughs in key technologies in core electronic components and large-scale integration. The draft 12th FYP emphasizes that a key priority for the government is to accelerate growth within the industry.

Accelerating the Upgrading of Home Appliance Industry

The Ministry of Industry and Information Technology (MIIT) issued *Guidance on Accelerating Upgrading of China's Home Appliance Industry* at the end of 2009. According to the *Guidance*, the home appliance industry should optimize industry structure, improve indigenous innovation capabilities, meet international standards, and make greater progress in pollution control and energy efficiency during the 12th Five-Year period.

The Chinese government's promotion of technologies that enable energy conservation and emissions reduction bring forth the opportunity for consumer electronics manufacturers to meet market demand and to develop and promote high-efficiency and low carbon products per government requirements. Given Israeli companies' advanced expertise in electronics technologies, particularly energy conservation and environmental protection, Chinese enterprises should welcome opportunities to collaborate.

Accelerating the Development of Strategic Industries

In September 2010, the State Council approved measures to accelerate the development of key strategic industries as well as continue reforms and improve the stability of the economic restructuring. The development of strategic industries is also part of the 12th Five-Year Plan. The seven key industries include: energy conservation and environmental protection, new-generation information technology, biotechnology, high-end equipment manufacturing, new energy, new materials, and alternative fuel sources.

IPR Issues in China

While the protection of intellectual property rights (IPR) remains a contentious issue for companies in China, the country's laws and regulations have progressed considerably in recent years. An increasing number of companies are compliant with the WTO's TRIPS agreement.

The main challenge surrounding IPR protection in China is the lack of regulatory enforcement. Enforcement issues arise from a range of root causes, including the relatively recent introduction of IPR legislation and concept of intellectual property in China, the absence of a fully independent judicial system, and the bias of provincial officials, who often exude a protective attitude towards local, job-creating counterfeiting industries.

While most foreign companies considering business operations in China may choose to tolerate IPR infringement to varying degrees, there are nevertheless a number of actions that a company may take in order to mitigate their IPR-related risk:

- Ensure patents, copyrights, or trademarks are registered with relevant bureaus
- Ensure that trade or other business agreements include clauses to protect IPR
- Sign contracts or confidentiality agreements with staff members who have access to key technologies and clearly communicate trade secrets and relevant policies
- Maintain awareness of China's (often quickly changing) regulatory and legal landscape. Seek advice on possible means of enforcement, such as administrative and judicial channels.

The “Internet of Things” is considered a strategic emerging industry and a key part of a new-generation information technology. It is reported that the government will invest RMB 3.86 trillion before 2020 into research and development related to sensor network technology, which includes components, systems integration, and data mining or analysis platforms to push forward Radio Frequency Identification (RFID) and sensor networks in China. A key element to the success of “Internet of Things” is the cooperation and support from telecom operators and the products and equipment needed to be updated and equipped with the sensors. As home appliances and consumer electronics are cited as the major objects to be equipped with sensors and connected with each other, it will bring major business opportunities for the technological update of these products. Meanwhile, demand of relevant chips and semi-conductors will also be increased to support the development of “Internet of Things.”

Stimulus Plan

In response to the global economic crisis, China’s government came up with a RMB 4 trillion stimulus package plan aimed at replacing an export-driven market with a domestic demand-driven market. In the electronics industry, China implemented several stimulus policies including the “Household Appliances to the Countryside” Program and “Household Appliance Replacement” Program to accelerate the development of consumer electronic products as well in order to update semiconductors, chips and software.

“Home Appliances to the Countryside” Program

The “Home Appliances to the Countryside” program, initiated by the Ministry of Finance (MOF) and the Ministry of Commerce (MOFCOM), provides a 13 percent subsidy to rural consumers when they purchase certain home appliances. The subsidy scheme was first piloted in December 2007 and was expanded starting in February 2009. With the wider implementation of the program, it has been instrumental in increasing domestic demand. Sales of home appliances in rural China in 2009 reached 34.5 million units, generating revenue of RMB 64.7 billion. Sales of home appliances in the first half of 2010 amounted to 35.52 million units, generating revenue of RMB 67.8 billion.

“Household Appliance Replacement” Program

“Household Appliance Replacement”, also called “Replace the Old with New”, is a program to recycle old home appliances and offer subsidies for new purchases. The program was first launched in nine pilot cities on June 1, 2009. The program was extended to 19 more provinces and cities in June 2010. As of May 23 2010, 13,875,000 units of old household appliances were sold (13,128,000 new units), with sales turnover amounting to RMB 50 billion.

“Energy Saving Products Benefit People” Project

“Energy Saving Products Benefiting People” is a project to promote the use of energy efficient products, including high energy-efficient lighting products, air conditioners, TVs, washing machines, automobiles and others. The project, which offers subsidies to consumers, was first launched in May 2009.

2. CONSUMER ELECTRONICS

- Consumer electronics manufactured in China have increased since the global economic crisis.
- China's consumer electronics industry has been fuelled by the government's stimulus plans, such as "Home Appliance to the Countryside" Program and "Home Appliance Replacement" Program. Industry analysts anticipate this trend will continue in the near future.
- Opportunities for Israeli firms are prominent in the following areas:
 - Frequency conversion technologies;
 - Intelligent electronics products;
 - Micro-SMD, particularly multilayer ceramic chip capacitors (MLCC), chip electrolytic capacitors, chip inductors, and integrated passive devices;
 - High-performance sensors, high-frequency components and small and special electrical machines;
 - High-end printed circuit boards and environmentally-friendly copper clad laminate materials;
 - Large capacity new and green batteries and high performance/low cost battery materials;
 - New electronic materials, including electronic grade polycrystalline silicon materials, high performance magnetic materials, and electronic ceramic materials.

2.1 OVERVIEW

China has become one of the leading manufacturers of consumer electronic products in recent years. Though heavily impacted by global economic crisis, the supply of consumer electronics in the global market has actually increased, just as the following chart indicates.

Percentage of world market share enjoyed by Chinese manufacturers in 2008 & 2009

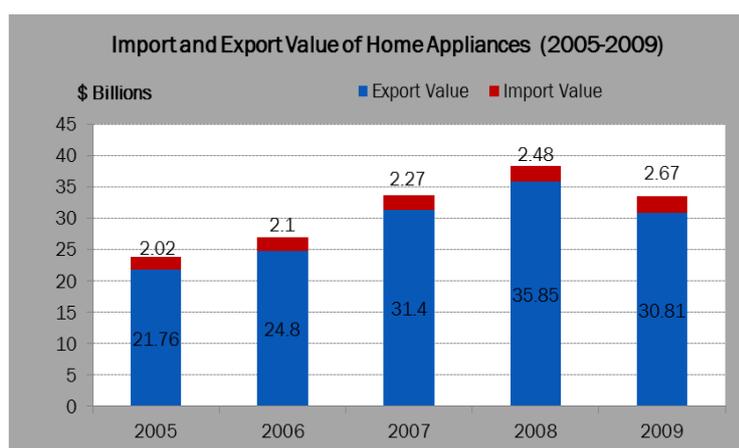
Item	2009	2008
	60.9% Computers (182 million sets)	47% Computers (147million)
	49.9% Mobile phones (619 million sets)	44.7% Mobile phones (560 million)
	85% DVD Players	80% DVD Players (150 million)
	48.3% TV Sets (99 million)	43.9% TV Sets (90 million)

Driven by favorable market conditions, sales revenue of most consumer electronics increased in 2009. Sales turnover of white home appliances reached RMB 153.5 billion, up 11.6 percent; color TVs reached RMB 131.2 billion, up 6.8 percent; small appliances

reached RMB 117.5 billion, up 6.6 percent. Mobile phones, particularly 3G standard mobile phones continued developing rapidly.

Sales Revenue of Main Consumer Electronics (2009)			
No.	Products	Sales Revenue (RMB billions)	Growth Rate
1	Refrigerators	56 (USD 8.24 billion)	23.1%
2	Washing machines	36 (USD 5.29 billion)	12.5%
3	Air-conditioners	61.5 (USD 9.04 billion)	2.5%
4	Color TVs	131.2 (USD 19.3 billion)	6.8%
5	Small home appliances ⁴	117.5 (USD 17.28 billion)	6.6%

Compared to the positive conditions in the domestic market, the international market was on the decline in 2009. Affected by the global downturn, consumer electronics exports also decreased in 2009, while imports increased. The import and export value of household appliances in 2009 was USD 32.96 billion, down by 13.1 percent, among which the export value was USD 30.81 billion, down by 13.2 percent and import value 2.67 billion, up 10.6 percent.



Source: MIIT

Flagship Companies Consumer Electronics

Haier

Founded in 1984, a leading private owned consumer electronics group in China and the world.

- HQ in Qingdao, Shandong province
- The fourth biggest white household appliance manufacturers in the world and market leader in China
- Has over 240 branches, with design centers, manufacturing bases and trading companies in more than 30 countries in the world, with staff over 50,000 internationally
- Sales revenue in 2009 reached RMB 32.98 billion (USD 4.85 billion)
- Market share in China ranks first, reaching over 25.5 percent
- World-class technologies in smart household appliances, IC, digital electronics, large-scale circuits and new materials
- Global Operations (GO) to manage global sourcing and logistics. Purchasing network coverage is worldwide while China is the biggest procurement center. Online open bidding for procurement in China is accessible at: www.haierbid.com.

⁴ Small home appliances mainly refer to electric fans, electric heaters, water dispensers, humidifiers, vacuum cleaners and air refreshers.

The main imported products are:

Main Imported Home Appliances (2009)		
No.	Products	Import Value (USD millions)
1	Air-conditioner components	433.15
2	Air-conditioner compressors	326.84
3	Refrigerator compressors	193.66
4	Air-conditioners	130.76
5	Compression refrigerators	77.60
6	Magnetrons	64.65
7	Washing machine components ≤10kg	46.54
8	Electric shavers	25.37

Imports only accounted for a small portion of foreign trade of household appliances. And imported products in 2009 focused on home appliance components, as the table above indicates.

2.2 MARKET STRUCTURE AND TRENDS

Rise of Third / Fourth Tier Markets

China's mid and small cities and rural market have undergone rapid development recently, especially with the implementation of the "Home Appliances to the Countryside" Program, therefore the sales of consumer electronics in third and fourth tier markets, particularly in central and western China, has also grown. With the government's support for development of western regions, the market there will continue to rise.

Further Market Consolidation

Given the decline of electronics exports in 2009, a number of export-dependent mid and small sized enterprises posted losses as the industry reshuffled. Market giants of consumer electronics began to occupy greater market share and less developed enterprises faced danger of elimination. The consolidation will continue in following years.

Rise of Domestic Brands

More domestic manufacturers and brands have begun appearing in the market. These brands offer high-quality products at competitive prices and have increased consumer confidence in domestically produced consumer electronics. Domestic manufacturers have spent substantial time and money on research and design of new products, aiming to incorporate the latest trends.

Rise of High-end Home Appliances

With the increase of personal income, consumers have begun to pay more attention to quality of life. Furthermore, as the concept of “low-carbon” spreads around the country, energy efficient products are becoming more popular among consumers. For example, statistics show that sales turnover of high-end refrigerators and washing machines was over 20 percent of the total sale revenue in 2009. And it is predicted that sales of high-end refrigerators in 2010 would be over 35 percent, and in urban market, over 50 percent. Furthermore, appliance enterprises are also beginning to target the high-end market, which is more profitable and less competitive. They are beginning to invest more in product efficiency and differentiation as well as personalized and fashionable design. High-end household appliance markets are on the rise.

New Markets

Portable reading devices and mobile Internet devices are hot products in the electronics industry in 2010. It is estimated that the sale volume of portable reading devices in China will increase from 800,000 units in 2009 to 3 million units by the end of this year. China is expected to become the largest portable reading device market in 2015. Mobile Internet devices have also strongly hit the market to compete with mobile phones and laptops. Additionally, with the emergence of the 3D TV market, the development of 3D TVs are now also on the agenda of main consumer electronics manufacturers.

2.3 DOMESTIC MARKET CHALLENGES

In recent years, China’s consumer electronics industry has been increasingly in need of reform, which has been exacerbated by the global economic crisis.

A few factors have contributed to the need for the consumer electronics segment to upgrade, such as an over emphasis on mid and low-end products, shrinking profit margins, and rising production costs.

Lack of Indigenous Innovation

China’s major domestic consumer electronics firms have made great progress in technological development of general electronics such as color TVs, washing machines, and refrigerators. However, compared with leading global electronics manufacturers, such as Sony, Samsung or Apple, most Chinese companies are lacking in indigenous

Flagship Companies Consumer Electronics

Hisense Group Corporation

Established in 1969, Hisense is a large-scale state owned electronic information company. The sales of it reached RMB 56 billion (USD 8.24 billion) in 2009.

- After the successful acquisition of Kelon Corporation, Hisense has two publicly-traded companies: Hisense Electric and Kelon Electric.
- Its products and services span six industries: multi-media, home appliances, communication, IT, real estate, and services (and facilities), with products including TVs, refrigerators, air-conditioners and mobile-phones.
- Hisense has a global R&D system, with R&D centers located in Qingdao, Beijing, Shenzhen, Shunde, South Africa, US. and the Netherlands.
- It has 13 production bases in China, South Africa, Hungary, and Egypt and subsidiaries in US, Europe, Australia, North Africa, and Japan. Its products are exported to over 100 countries and regions throughout the world.
- Hisense Kelon established joint frequency conversion lab with DigiPower (Hong Kong) and Ryosan (Japan) in June, 2010.
- With the increase of export, Hisense plans to establish more overseas plants.

innovation and are of falling behind in core technologies and R&D capacities. As a result, a large number of Chinese consumer electronics companies are crowded in mid-to low-end technologies and electronics and must compete on price. However, with attention increasingly being paid to indigenous innovation, a greater amount of capital is being invested into R&D by Chinese companies, which could also be leveraged by Israeli companies with advanced technologies.

Competitiveness of Manufacturing in China Declining

As a result of rising labor and production costs, China's competitiveness as a destination for low-cost manufacturing is gradually declining. Consequently, electronic components producers are increasingly looking for alternative growth strategies inside and outside the country.

2.4 MARKET OPPORTUNITIES

The chart at right shows usage rates of major electronic products in China, which are much lower than those in developed countries. This indicates the development potential to be tapped by electronics players and also business opportunities for advanced foreign technologies.

Wider Application of Frequency Conversion

Due to higher manufacturing costs, sales of frequency conversion products now only account for a small portion of in-home appliances. However, with the advantages of energy conservation, noise reduction and high efficiency, frequency conversion products have generated more attention, such as frequency conversion air-conditioners. Sales of frequency conversion air-conditioners from September 2009 to August 2010 reached 2.5 million units, increasing by 56.24 percent, and market share rose from 6 percent to 17.33 percent. As frequency conversion technology is predicted to be more widely used in a variety of household appliances including refrigerators, and washing machines, there are likely more business opportunities.

Item		2009	2008
Mobile Phone Users	Total users (million)	747.4	641.23
	Penetration rate	56.3%	48.5%
Internet Users	Total users (million)	384	298
	Penetration rate	28.9%	22.6%
Computer	Total (million sets)	220	180.56
	Per one hundred population	16.7	13.6
TV	Total (million sets)	560	518.4
	Per one hundred families	132	128.4

Development of Intelligent Consumer Electronics

With Chinese government's support for the development of "Internet of Things", network convergence and smart grid, the development of intelligent consumer electronics will become the mainstream of consumer electronics. Currently, the most eye-catching product within the intelligent consumer electronics market is Internet Television. Chinese enterprises like Changhong and TCL have already made substantial efforts in R&D of Internet TV. By August 2010, Changhong and TCL had sold more than 1.5 million Internet TVs and the number is expected to be four to five million by the end of this year.

With further development of intelligent consumer electronics, there will be more opportunities for cooperation between China and Israel.

R&D Focus and Opportunities for Sino-Israeli Cooperation

Opportunities for Israeli consumer electronics component firms particularly exist in three main areas of weakness which China has indicated as its focus for new R&D efforts:

- Micro surface mounted devices (SMD), particularly multi-layer ceramic chip capacitors (MLCC), chip electrolytic capacitors, chip inductors, and integrated passive device;
- Other high-performance sensors, high-frequency components and small and special electrical machines;
- High-end printed circuit board and environmentally friendly copper clad laminate materials;
- New and green batteries with large capacities and high performance/low cost battery materials;
- Other new electronic materials, including electronic grade polycrystalline silicon materials, high performance magnetic materials and electronic ceramic materials.

Geographic Areas of Focus

The Pearl River Delta is the largest consumer electronics manufacturing base in China, with high

Consumer Electronic Components Firms in China: Competition for Israeli Firms?

China's consumer electronics component industry is mainly driven by FIEs, which contribute to approximately 80% of total industrial revenue. Partly because of their larger exposure to western markets, the economic downturn has had a greater impact on the FIEs than on domestic firms.

China's main products include basic electronic components such as capacitors, resistors, magnetic materials, inductors, transformers, filters, antennae, electronic transformers, quartz crystal units, micro-electronic machines, electronic adapters and printed circuits. Electronic components based on multilayer ceramic (MLC) and low-temperature co-fired ceramic (LTCC) are also examples of mainstream products. Furthermore, China produces 46% of the world's electric acoustic devices, and 70% of the world's micro-electronic machines.

TDK China CO., Ltd.

TDK China is a subsidiary of TDK Corporation in Japan. It began operating in China in 1989 and may be a competitor for many Israeli consumer electronics components firms.

- HQ in Shanghai and 10 manufacturing branches in East and South China
- Produces consumer electronic components for IT, home appliances, cell phones, computers, DVD/HDD recorders, flat panel displays, etc.
- Aims to expand business in transformers, transducers, modules and displays.
- Sales revenue in 2009 was RMB 5.08 billion (USD 747.28 million).

levels of R&D capabilities and comprehensive logistics services. A number of famous domestic brands include Gree, Midea, Galanz, and TCL are located here. The Yangtze River Delta and the Bohai Rim area also play an important role in consumer electronics manufacturing in China, including Hisense, Haier and Inspur. However, due to rising labor costs in coastal areas and government support of industries relocating to western areas, manufacturing of consumer electronics is likely to shift to western China in the near future.

2.5 KEY INDUSTRY EVENTS

China International Consumer Electronics Show (SINOCES)

Qingdao International Exhibition Center, Shandong Province

July 7-10, 2011

Organized by the Ministry of Commerce (MOFCOM), Ministry of Industry and Information Technology (MIIT), Ministry of Science and Technology (MOST), and Shandong Provincial Government, SINOCES is one of the most influential consumer electronics exhibitions in the Asia-Pacific region. It was first held in 2001.

In July 2009 and 2010, APCO and IEICI led an Israeli electronics trade delegation to SINOCES. In 2010 the event housed 503 exhibitors and received over 65,000 visitors

Exhibit categories include household visual products, digital entertainment products, household appliances, portable office equipment, storage solutions, mobile communication solutions, security products, and automotive electronics, among others. The exhibition also has showrooms for specific topics, such as industrial design, environmental protection products, security, 3G standard communications, electronic business, and digital family. SINOCES 2010 held over 20 conferences covering hot topics such as network convergence, industry development trends, product innovation, government procurement and regional cooperation.

Website: <http://www.sinoces.com/en/index.aspx>

China Electronics Fair (CEF)

Shanghai New International Exhibition Center

November 3-5, 2010

Shenzhen Convention & Exhibition Center

April 8-10, 2011

Organized by local governments of Shanghai, Shenzhen and Chengdu, China Electronics Fair (CEF) was first held in 1964. It is one of the five big electronics Exhibitions in Asia. CEF holds three exhibitions every year, one each in the spring, summer and fall. The summer exhibition was held in Chengdu in September; and the fall exhibition will be held in Shanghai in November.

The Chengdu exhibition received about 400 exhibitors and more than 10,000 visitors, with an exhibition floor of more than 10,000 square meters. Exhibit categories include electronic components, electronic materials, manufacturing equipment, testing equipment, and measurement apparatus among others.

The Shanghai exhibition is expected to host about 1,500 exhibitors and more than 60,000 visitors from China and abroad, with an exhibition floor of over 60,000 square meters. Exhibit categories include consumer electronics, green lighting products, new display technology, security electronics, automotive electronics, energy-saving technology, environmental protection technology, and others.

Website: www.icef.com.cn

Flagship Companies Consumer Electronics

Konka

Founded in 1980, a Sino-foreign joint venture focusing on the manufacture of color TVs and other consumer electronics

- HQ in Shenzhen, Guangdong province.
- Produces color TV sets, mobiles, white household appliances, LEDs, TV top-boxes and related components.
- Has over 50 sales branches, several hundred sales offices and over 3,000 after-service sales centers in China.
- Products are sold in China and more than 100 countries and regions. Sales revenue in 2009 reached RMB 13.26 billion (USD 1.95 billion), growing 8.63 percent annually.
- Best-seller of color TVs in China in recent years, covering CRT TVs, flat-panel display TVs, digital TVs and projection TVs, with annual production of over 12 million sets.
- One of the top three sellers of mobiles (GSM and CDMA) among domestic brands, with annual production of 8million sets.
- Has 6 manufacturing bases in different provinces in China, and product processing manufacturing enterprises in Thailand, India, Mexico, Turkey, EU and the US.
- Recently focused on LED R&D and production, and seeking opportunities for cooperation in its upper stream industrv.

Flagship Companies Consumer Electronics

TCL

Established in 1981, TCL is one of the largest state-owned consumer electronics enterprises in China. Three listed companies are under the group; TCL Corporation, TCL Multimedia Technology, and TCL Communication Technology. In 2009, it recorded more than USD 6.27 billion in sales.

- The company has five product lines: color TVs, audio & video, communication, home appliances and digital products.
- Multimedia business and home appliances account for 62.3 percent and 7.3 percent of sales respectively.
- 61.37 percent of sales are to domestic customers, 38.63 percent are to the overseas market.
- Headquartered in Huizhou, Guangdong province, the company has a sales and marketing network throughout China and abroad.
- Has over 20 manufacturing and processing plants located in China, Poland, Mexico, Thailand and Vietnam.
- TCL has an internal electronics procurement and bidding system.
- In 2010, TCL will focus on its multimedia and communication businesses. It will also strengthen development of titanium and energy efficient air-conditioners.

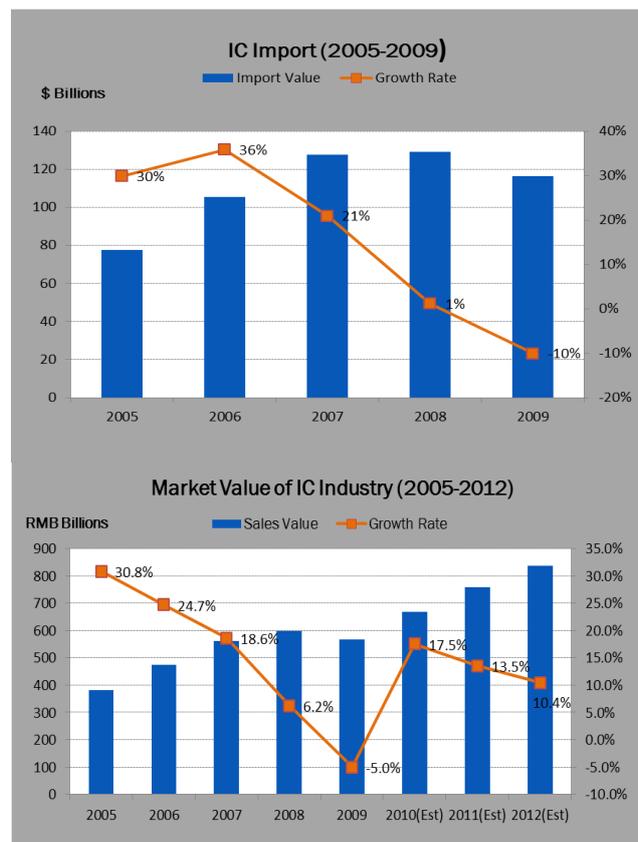
3. SEMICONDUCTORS

- China's Integrated Circuit (IC) enterprises are not able to keep pace with high domestic demand. Approximately 80 percent of chips used domestically are currently imported.
- Though China's IC segment contains companies which operate in almost every stage of the supply chain, operations can be weak and require high levels of technological capabilities instead of excelling at IC assembly and testing, which has low technological barriers to entry.
- China's IC industry is dominated by FIEs.
- Israeli firms which excel in semiconductor design, R&D, and manufacturing are well-equipped to compete in China's semiconductor market. However, Israeli firms which specialize in equipment for IC assembly and testing may face a higher degree of competition due to strong capabilities of Chinese companies in this segment.
- Business opportunities in IC development are ample as China has taken steps to develop networks convergence, 3G standard telecommunications, and "Internet of Things". The industry will also be driven by development of automobile, medical and industrial electronics.

3.1 OVERVIEW

China's semiconductor market value was USD 68.2 billion in 2009, representing a 6.8 percent decrease. Demand of semiconductors is expected to rebound, continuing the strong growth trend witnessed in recent years.

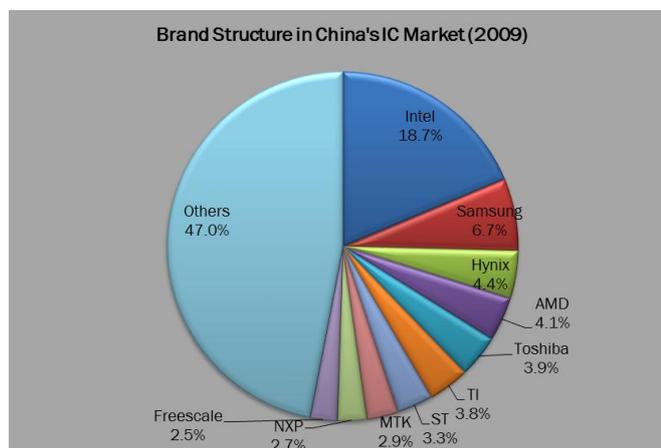
China's vast chip market comprises nearly 1/3 of total global demand. However, domestic IC enterprises have only been able to satisfy around 20 percent of the country's domestic demand, leaving the other 80 percent to imports.⁵



Source: CSIA

⁵ However, a considerable number of imported products are re-imported, e.g. due to favorable trade policies.

China's IC industry grew at a rapid pace in the past few years. The industry slowed to single digit growth rates in 2008 and even experienced negative growth in 2009 as a result of the global economic crisis and slowing demand. Similarly, imports have continually decreased in the past two years. However, new growth postings are expected in 2010. Foreign brands still play a major role in China's IC market. Intel and Samsung are market leaders, respectively with a market share of 18.7 percent and 6.7 percent. MTK is the only Chinese brand among the top 10 brands, ranking 8th in the market with 2.9 percent market share.



3.2 MARKET STRUCTURE AND TRENDS

Over 90 percent of China's semiconductor industry is involved in the production of IC. While within the IC segment, China has companies operating in almost every stage of the supply chain, capabilities can vary considerably from company to company.

IC manufacturing is the weakest link in semiconductor industry development and is also regarded as the most challenging. As development of IC design and IC equipment and materials is dependent on the development of IC manufacturing, it is crucial to promote the development of IC manufacturing. IC manufacturing generated a revenue of RMB 34.1 billion (USD 5.01 billion) in 2009, down 13.2 percent. Driven by export recovery, IC manufacturing is likely to increase in the near future. However given the uncertainty of the revival of global economy, investors will be more cautious in this sector and growth will be gradual.

While other sectors declined in 2009, IC design sector kept growing in 2009 and according to data from the China Semiconductor Industry Association (CSIA), sales revenue of IC design sector was RMB 38 billion (USD 5.59 billion), up 11 percent from last year, and analysts project this will continue. A number of domestic IC design enterprises seek to go public in the near future, which will bring more funds to the sector and accelerate growth.

IC assembly and testing was formerly the fastest developing sector in the industry. However, due to the decline of the global market in 2009, sales revenue of IC assembly and testing was down by 19.5 percent. Currently, domestic demand for IC assembly and testing focuses on mid-and-low products. With increased demand for high-end circuit products, the demand for mid and high-end assembly and testing will increase accordingly.

IC equipment and materials are also weak sectors in China, but are developing gradually. Market value of IC equipment in 2010 is projected to reach RMB 50.38 billion (USD 7.4 billion). Currently, Chinese enterprises mainly supply IC equipment measuring 6-inches

or less, but with the development of large scale IC, demand for 8-inch and 12-inch equipment will increase. China has made progress in R&D of 8-inch equipment, so it is predicted that chip manufacturers will turn to domestic equipment manufacturers for cost control. Meanwhile, the Chinese government has also paid close attention to R&D of large scale IC manufacturing equipment and encouraged its development with financial support.

Generally speaking, as most companies in the IC industry are mid and small-sized, the industry will witness mergers and acquisitions in the near future. Leading IC enterprises in China include China Electronics Technology Group Corporation, China Electronics Corporation, and China Resources Group, all of which are already engaging in industry integration. More cooperation is anticipated in the future.

Geographic Areas of Focus

China's semiconductor industry is based in coastal regions such as the Yellow River Delta (YRD) and the Pearl River Delta (PRD), with high-technology semiconductor enterprises in developed cities such as Beijing, Tianjin, Shenzhen, Wuxi (Jiangsu Province) and Suzhou (Jiangsu Province). In addition, large cities in inland areas such as Chongqing and Xi'an (Shaanxi Province) are gradually developing large industrial parks for the semiconductor industry.

The tables below list the main domestic players in three segments of China's semiconductor industry.

Top 10 IC Design Enterprises (2009)			
Enterprise	Location	Sales '09 (RMB Billion)	Website
Shenzhen Hisilicon	Shenzhen	3.91 (USD 575 million)	www.hisilicon.com
China Integrated Circuit (CIDC)	Beijing	1.44 (USD 212 million)	www.cidc.com.cn
Hangzhou Silan Microelectronics Co., Ltd	Hangzhou	0.98 (USD 144 million)	www.silan.com.cn
Shanghai Huahong Integrated Circuit Co., Ltd	Shanghai	0.652 (USD 95.9 million)	www.shhic.com
Datang Microelectronics Technology	Beijing	0.647 (USD 95.1 million)	www.dmt.com.cn
Wuxi China Resources Semico Co., Ltd	Wuxi	0.58 (USD 85.3 million)	www.semico.com.cn
Beijing Vimicro Corporation	Beijing	0.52 (USD 76.5 million)	www.vimicro.com
CEC Huada Electronic Design Co., Ltd. (HED)	Beijing	0.46 (USD 67.6 million)	www.hed.com.cn
Beijing Tongfang Microelectronics Co.	Beijing	0.45 (USD 66.2 million)	www.tsinghuaic.com
Haier (Beijing) IC Design Co., Ltd.	Beijing	0.4 (USD 58.8 million)	www.haier-ic.com

Top 10 Chip Manufacture Enterprises (2009)			
Enterprise	Headquarters	Sales '09 (RMB Billion)	Website
Hynix-ST Semiconductor	Wuxi	10.64 (USD 1.56 billion)	hnsi.hynix.com
Semiconductor Manuf. International Corp.	Shanghai	7.31 (USD 1.08 billion)	www.smics.com
Shanghai Huahong Group	Shanghai	1.64 (USD 241 million)	www.hhnec.com
Hejian Technology (Suzhou) Co., Ltd.	Suzhou	1.22 (USD 179 million)	www.hjtc.com.cn
Grace Semiconductor Manufacturing Corporation	Shanghai	1.1 (USD 162 million)	www.gracesemi.com
TSMC (Shanghai) Co., Ltd	Shanghai	0.87 (USD 128 million)	www.tsmc.com
China Electronics Technology Group Corporation 55 th Institute	Nanjing	0.834 (USD 124 million)	www.nedi.cn
China Resources Microelectronics Limited	Wuxi	0.83 (USD 122 million)	www.crhj.com.cn
Shougang NEC Electronics	Beijing	0.73 (USD 107 million)	www.sgnec.necel.com
BCD Semiconductor Manufacturing Limited	Shanghai	0.68 (USD 100 million)	www.bcdsemi.com

Top 10 Assembling & Testing Enterprises (2009)			
Enterprise	Location	Sales '09 (RMB Billion)	Website
Freescale Semiconductor China	Tianjin	6.59 (USD 969 million)	www.freescale.com.cn
RF Micro Devices, Inc	Beijing	5.29 (USD 778 million)	www.rfmd.com
Jiangsu Xinchao Technology Group	Jiangyin	4.22 (USD 621 million)	www.xcgp.com
Panasonic Semiconductor	Shanghai	2.95 (USD 434 million)	panasonic.cn
Shenzhen STS Microelectronics	Shenzhen	2.79 (USD 410 million)	www.st.com
Nantong Huada Microelectronics Group	Nantong	2.72 (USD 400 million)	www.nthuada.com
Samsung Electronics (Suzhou) Semiconductor Co., Ltd	Suzhou	2.08 (USD 306 million)	china.samsung.com.cn
Advanced Semiconductor Engineering (Shanghai)	Shanghai	1.99 (USD 293 million)	www.asesh.aseglobal.com
Renesas Technology	Beijing	1.91 (USD 281 million)	cn.renesas.com
Infineon Technology (Wuxi) Co., Ltd	Wuxi	1.86 (USD 274 million)	www.infineon.com

Source: China Semiconductor Industry Association

Top 10 Semiconductor Equipment Manufacturers (2009)			
Enterprise	Location	Sales '09 (RMB Million)	Website
No. 48 Research Institute, CETC	Changsha	451.42 (USD 66.4 million)	www.cs48.com
Beijing Jingyuntong Technology Co., Ltd.	Beijing	438.24 (USD 64.4 million)	www.jingyuntong.com
Huasheng Tianlong Photoelectric Co., Ltd.	Jiangsu	313 (USD 46 million)	www.hstl.cn
Beijing Jingyi Century Electronics Co., Ltd.	Beijing	272.64 (USD 40.1 million)	www.chinabyi.com
No. 45 Research Institute, CETC	Beijing	241.45 (USD 35.5 million)	www.45inst.com
Lanzhou Rapid Group	Lanzhou	200.25 (USD 29.4 million)	dz.lzrapid.com
Crystal Growing Technology	Xi'an	174.74 (USD 25.7 million)	www.xacgt.com
Beijing Sevenstar Electronics Co., Ltd.	Beijing	104.19 (USD 15.3 million)	www.sevenstar.com.cn
Shanghai Nissin Machine Tools Co., Ltd.	Shanghai	54.97 (USD 8.1 million)	www.nissin-sh.com.cn
No. 2 Research Institute, CETC	Shanxi	44.06 (USD 6.5 million)	www.ersuo.com

Source: www.cena.com.cn

3.3 DOMESTIC MARKET CHALLENGES

Lack of Technological Expertise

A lack in technological expertise is a main reason why China's semiconductor industry development is still in its infancy. R&D capabilities in the industry are limited and must depend on acquisition of foreign technology, which has hindered China's development of high-end semiconductors.

Lack of Advanced Manufacturing Equipment

Nearly 90 percent of Chinese semiconductor manufacturing equipment is imported, mainly from the United States, the European Union, and Japan. Though domestic enterprises have made progress developing equipment in recent years, China's still lags behind its Western and Japanese counterparts, particularly in high-end equipment.

Lack of Competitive Enterprises

Competitiveness is an issue because China's semiconductor enterprises are small and the IC industry tends to be dominated by foreign-invested enterprises. In 2009, the top 20 IC industry players accounted for 65.6 percent of total market share. However, only one Chinese enterprise ranked among the top 20. Overall, China's domestic semiconductor companies are still in nascent stages of development and lack competitiveness in the global market.

3.4 MARKET OPPORTUNITIES

Development of the electronics market and other electronics technologies will increase demand for China's semiconductor products. An estimated RMB 270 billion (USD 40.8 billion) will be invested in the semiconductor industry during the 12th Five-Year period

(2011-2015). It is predicted that China's semiconductor industry will witness major growth in the next five years.

3G Telecom

China began issuing 3G licenses in January 2009, which spurred ample opportunities for mobile phones, communication-related IC and chip businesses and will continue to do so. Statistics showed that by the end of 2009, there were about 11.4 million 3G mobile phone users in China, about 1.5 percent among total mobile users. By the end of September 2010, this number grew to 34.99 million, with a growth rate of over 200 percent. The number of 3G mobile phone users is likely to keep growing given the large market potential in China.

"Internet of Things"

Internet of Things (see Chapter 1.2) has drawn wide attention from both the government and enterprises, and is projected to take off in the near future. The development of the industry will increase demand for chips and semiconductors.

Network Convergence and Triple Play

The Chinese government plans to interconnect the country's telecommunications, TV and radio networks – in addition to radio Internet in order to boost the development of the information and cultural sectors. There are two stages of goals, which could potentially pose a challenge as well:

- 2010-2012: Organize pilot projects in some sectors on two-way market access for both telecom enterprises and broadcast enterprises.
- 2013-2015: Sum up experience and accelerate network convergence and triple play comprehensively.

In order to develop its network convergence, China's government will introduce preferential fiscal and taxation policies to promote R&D and industrialization of key technologies, basic technologies and other network convergence-related technologies. Additionally, the government will add convergence products and services into the government procurement list.

As such, opportunities for IC are created by the network convergence plan and government incentives.

Flagship Companies Semiconductors

Semiconductor Manufacturing International Corporation (SMIC)

Founded in 2000, SMIC, a Sino-foreign JV, is the biggest IC Foundry enterprise with the most advanced technology among domestic firms in China, and has become a leading global IC Foundry enterprises

- HQ in Shanghai with 8 factories producing 200mm & 300mm-chips located in Shanghai, Beijing, Tianjin and Shenzhen.
- Sales revenue was USD 1.1 billion in 2009.
- Main foundry for the top-5 IC chip suppliers in the world.
- In cooperation with Dolphin Company (U.S.) to develop digital analogue converters, and FlipChip International (FCI) to develop new-generation 300mm flip chips and foundry packaging.

Shenzhen Hisilicon Semiconductor Co.

Founded in 2004, Hisilicon is owned by Huawei, and has its HQ in Shenzhen. Hisilicon has set up design divisions in Beijing, Shanghai, Silicon Valley and Sweden.

- 1,600 employees.
- Sales revenue ranked top among domestic IC design companies in 2007, 2008 and 2009.
- Focuses on chip solutions in the three fields: communication networks, wireless terminals and digital media.
- Developed more than 100 chips, with 500 patents. Products distributed to 60 countries.

- Chips, head end devices and solutions are relevant for digital TV and will rapidly develop in accordance with the development of network convergence.
- Mobile multimedia, mobile TV and cable broadband. These will similarly accelerate development of the network convergence plan.

Automotive, Medical and Industrial Electronics Industry

China witnessed a 46 percent increase of automobile sales in 2009, making it the largest automobile manufacturer in the world. It is predicted that this trend will continue in the near future. The huge growth in China's automobile industry has driven the growth of the automotive electronics industry. Statistics show that market value of the automotive electronics industry in China in 2009 reached RMB 148.43 billion (USD 22.4 billion) and is expected to reach RMB 300 billion (USD 45 billion) in 2012. Medical and industrial electronics will also rapidly develop in the next few years. Israeli companies with electronic products or applicable solutions should note this important growth trend.

Further Opportunities/Technologies in Increasing Demand

- IC design for telecommunications, computers, network, digital audio, smart card and industrial control;
- 8-12 inch IC production lines and materials;
- New IC assembly and testing technologies including Ball Grid Array (BGA), System in Package (SIP), Chip Scale Package (CSP), Quad Flat Non-leaded Package (QFN), flipchip, and Multi-Chip Module Package (MCM).

3.5 KEY INDUSTRY EVENTS

2011 China IOT Technology and Application Expo

Suzhou International Exhibition Center, Jiangsu province

April 22-24, 2011

Organized by the Suzhou Economic and Information Commission and Suzhou Science and Technology Bureau, 2011 China IOT Technology and Application Expo works as the platform for R&D, manufacturing, application and investment companies in "Internet of Things" industry. The International "Internet of Things" Development Forum will also be held during the exhibition.

Exhibit categories include RFID, sensors, chips, telecommunication products and technologies, system integration and software, and more.

Website: www.ccpitecc.com

SEMICON China 2011

Shanghai New International Exhibition Center

March 15 – 17, 2011

Organized by SEMI, a non-governmental international industrial association, SEMICON China is one of the biggest events in Chinese semiconductor industry. First held in 1988, SEMICON China 2010 hosted 1000 exhibitors and over 100,000 visitors. During the exhibition, it also held several seminars including CSTIC 2010, 6th CSPV, and conferences on flat panel.

Exhibit categories include IC products, FPD, MEMS, PV and other related products and technologies.

Website: www.semi.org

4. Flat Panel Displays

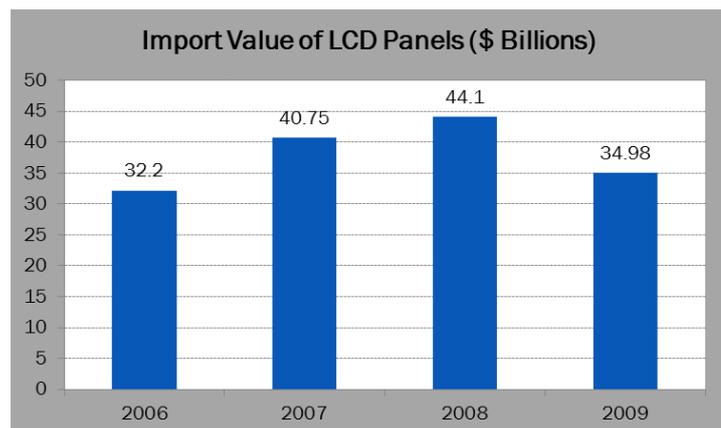
- China's flat panel display (FPD) industry is still in early stages of development, due to a relative lack of scale, R&D capabilities, capital, and integrated supply chain that is typically required in this industry.
- The most developed segment in the industry is the TFT-LCD segment; the PDP and OLED segments have yet to reach as mature a stage as TFT-LCD. TFT-LCD is the investment hotspot in 2009, with a number of high generation production lines under construction or waiting for approval.
- China's FPD industry is weak in manufacturing equipment and raw materials, which limits the long-term development of the industry.
- Israeli firms producing equipment and materials for use in FPDs in TVs, especially PDP and OLED FPDs, as well as 6G-and-above TFT-LCD FPDs may find ample opportunities in the Chinese market. Demand for FPDs is expected to increase with the support of government policy and industry upgrading.
- Additional opportunities for Israeli firms in the FPD segment include energy saving technologies (especially OLED FPDs due to their energy saving potential) and next generation FPD development.

4.1 OVERVIEW

The global FPD industry was hit hard by the global economic crisis, but it bounced back particularly in China. There is currently a strong market demand of FPD in China, particularly in the areas of TVs, mobile phones, and computers. In 2009, production of FPD TVs was over 66 million units, the largest color TV manufacturer in the world. Among all FPD products, TFT-LCD has drawn substantial attention in 2009 and the development momentum is likely to continue.

4.2 MARKET STRUCTURE AND TRENDS

FPDs can be divided into Liquid Crystal Displays (LCD), Plasma Display Panels (PDP), and Organic Light Emitting Diodes (OLED). Currently the majority of Chinese companies have only developed capabilities for Thin Film Transistor (TFT)-LCDs.



Source: MIIT

TFT-LCD

China's focus on the TFT-LCD segment stems from a government policy issued in 2003, which shortened the minimum depreciation period for TFT-LCD production equipment to three years, and provided an exemption on import duties for raw materials and manufacturing equipment for TFT-LCD. While import duty exemptions expired at the end of 2008, in June 2009, the Ministry of Finance (MOF) announced that the import exemption policy would extend to the end of 2011.

High-generation TFT-LCD was the highlight in FPD development in 2009. Over 10 cities in China planned to build 13 6G-and-above TFT-LCD projects and 6 8G-and-above TFT-LCD projects, which will greatly increase production capacities of TFT-LCD in China in the near future. It is predicted that output value of TFT-LCD will be over USD 130 billion by 2015, accounting for 90 percent of the whole FPD industry.

Though imports of LCD panels decreased over 20 percent in 2009, driven by strong domestic demand, import value in 2010 began to rise.

PDP and OLED

The PDP and OLED segments have yet to reach a stage of development similar to the TFT-LCD segment and much of the recent R&D efforts by industry and government have focused on PDP and OLED. Domestic companies engaging in the R&D of PDP products are only Sichuan Changhong Electronic, Nanjing Huaxin High Technology and Beijing R&D Center of Century Shuanghong Display Devices Co., Ltd. Compared with PDP, OLED has drawn greater attention, with a number of production lines put into operation in 2009 including Sichuan Changhong, Kunshan Visionox Technology, Irico Flat Panel Display, and Dongguan Anwell.

Additionally, as China's government extends import duty exemptions to PDP and OLED, import of PDP and OLED will also be increased.

Geographic Areas of Focus

FPD enterprises are centralized in the YRD, Bohai Economic Rim (Beijing, Tianjin and Dalian areas) and PRD. Guangdong, Jiangsu and Fujian are the main markets for TFT-LCD imports.

Flagship Companies FPD

Shanghai Video and Audio Group (SVA)

Established in 1995, its primary product line is LCD televisions, and they currently boast the largest volume of TFT-LCD production in China.

- Strategic partnerships and joint ventures with Matsushita, Asahi, Samsung, and Suogang.
- Sells LCD televisions, cathode ray televisions, digital light processing projection engines and televisions, and vacuum fluorescent displays, mobile phones, digital cameras, air conditioners, and refrigerators.
- Sales revenue was RMB 567.4 million (USD 83.4 million) in 2009.
- Cooperated with Shanghai University to establish the SVA Research Center for FPD Engineering Technology.

BOE Technology Group Co., Ltd. (BOE)

Established in 1993, BOE was the first Chinese company to enter the display systems and solutions field in China.

- Currently, the company has a 5G TFT-LCD production line, a 4.5G production line, a 6G production line and a 8.5G production line under construction.
- BOE purchased HYDIS electronics in January 2003 to enter the TFTOLCD industry.
- Core business includes TFT-LCD, vision electron and display system, back light products and precision electric components and materials.
- Sales revenue in 2009 was RMB 6.2 billion (USD 912 million).

There are five 5G-and-above TFT-LCD production lines in the YRD currently (a total of seven in China). Furthermore, the top 10 FPD TV manufacturers, computer manufacturers, and LCD manufacturers in the world have manufacturing bases in the YRD. The Bohai Rim houses numerous well-known IT and communication companies, such as Lenovo, Tsinghua Tongfang and Founder Tech. Beijing and Tianjin serve as China's FPD R&D and talent training centers, due to the presence of universities and institutes focusing on FPD. Chi-Mei Corporation (a key Taiwan FPD manufacturer) and LG Display have also established manufacturing bases in Guangdong. The PRD focuses on LCD TVs, and numerous domestic TV and telecommunication hardware companies are located there as well, including Skyworth, Konka, GreatWall, TCL, ZTE and Huawei.

Top Domestic FPD Companies in China (2009)				
Company Name	Product	Province	Sales Revenue in 2009 (RMB million)	Website
BOE	Main product- TFT-LCD products	Beijing	6249.2 (USD 919 million)	www.boe.com.cn
IVO	Main product – TFT-LCD products	Jianggsu	3550 (USD 522 million)	www.ivo.com.cn
SVA	LCDs, modules and electronic components	Shanghai	567.4 (USD 83.4 million)	www.sva.com.cn
Sichuan Century Shuanghong Display Co., Ltd.	Research & manufacturing FPD, especially PDP. No mass production capabilities yet	Sichuan	N/A	www.changhong.com www.irico.com.cn
Nanjing Huaxian High Technology Co., Ltd	Engages in researching and developing PDP products, currently in R&D stage	Jiangsu	N/A	www.smpdp.com
Shenchao Photoelectricity Co., Ltd	5G TFT-LCD, planned mass production by year end 2008	Shenzhen	N/A	N/A

4.3 DOMESTIC MARKET CHALLENGES

China's domestic FDP industry is still in a nascent stage of development due to a relative lack of scale, R&D capabilities, capital, and integrated supply chain which is typically required in this field.

Lack of Complete Industry Chain

One of the reasons that Japanese and Korean enterprises are quite successful in the development of FPD is that they have complete industry chains from upstream to downstream to provide them with high quality and competitive raw materials and equipment. China is still dependent on foreign companies to import manufacturing equipment and raw materials, which increases the costs of FPD production and reduces the competitiveness in global market.

Weak Capabilities in R&D, Industrializing Advanced Technology

In spite of government support to promote TFT-LCD and technology transfer, production technologies still lag in comparison to leading international players.

FPDs can be divided into large and middle/small-sized panels.⁶ Due to technological shortcomings, Chinese manufacturers' market share for large-sized TV panels is negligible, both at home and overseas. Domestic FPD manufacturers are considerably stronger at producing middle/small sized panels for TVs and general FPDs for PCs and mobile devices. Large-size TV panels in China are still largely dependent on imports.

Danger of Production Overcapacities and Lack of Sustainable Development

In 2009, over 8 7.5G-and-above production lines began construction, with a total investment estimated at over RMB 200 billion (USD 30.2 billion) It is predicted that by 2012, China's production capacities of 40/42 inch TFT-LCD will reach 200 million units, surpassing global demand. Given overheated TFT-LCD investment, there is a risk of overcapacity. Furthermore, the development of TFT-LCD requires a large and long-term investment of capital, technology and labor. For example, a production line of 8.5G requires a primary investment of at least RMB 10 billion (USD 151 million). Currently, the projects in Beijing, Guangzhou, and Shenzhen are all large in scale, which is likely to bring the problem of financing.

4.4 MARKET OPPORTUNITIES

R&D Cooperation

According to China's support for the developing electronics industry, the government plans to improve next-generation production capabilities in the FPD industry. As such, the Chinese government will invest in the industrialization of advanced technologies, as well as R&D for new technologies. Additionally, it has announced it will support technological development for next-generation FPD production, with complete set and module integration design and glass substrate manufacturing via utilization of foreign resources and international cooperation.

Energy Saving Technologies

The Chinese government has increasingly emphasized energy-saving technologies and industrial upgrades of its companies. Chinese consumers have also become more aware of energy consumption and their environmental responsibilities. As a consequence, demand for energy saving TVs (and FPDs) is expanding quickly, both Chinese and foreign-invested TV manufacturers in China, including Sharp, Sony, Samsung, LG, Hisense, TCL and Skyworth are developing energy conservation technologies.

Materials Industry

The raw materials industry for FPD, particularly LCD, has long been dominated by foreign companies. However, Chinese companies are beginning to develop raw materials and have made progress in glass substrates, liquid crystals, and polarizers. With increased domestic demand for LCD products, the raw materials industry is projected to keep growing.

⁶ Large-sized: 32 inch or above for TV panels, 17 inch or above for PC panels; medium & small-sized: below 32 inch for TV panels, below 17 inch for PC panels.

Color TV Industry

With industry upgrades in China's color TV industry, it is now considered to be in the "FPD era" of development. With large market demand and government support, demand, particularly for TFT-LCD, will be greatly increased. The production of FPD TV's in 2011 is predicted to reach 47 million units, becoming the No. 1 market in the world and is expected to reach 59 million by 2014.

4.5 KEY INDUSTRY EVENTS

FPD China 2011

Shanghai New International Expo Center

March 15-17, 2011

FPD China is hosted by China Electronic Chamber of Commerce and SEMI. SEMI is the global industry association serving the manufacturing supply chains for the microelectronic, display and photovoltaic industries. In 2010, 129 exhibitors from 13 countries and over 36,000 visitors attended the exhibition and a number of seminars took place concurrently. FPD China 2011 will demonstrate the entire industry chain and emphasize the next major display technologies.

Exhibition products featuring all kinds of FPD include LCD, PDP, SED, FED and electronic papers.

Website: www.fpdchina.org

APPENDIX I: CHINA MAP



APCO CONTACT DETAILS

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