
INDUSTRY OVERVIEW

INFORMATION TECHNOLOGY INDUSTRY IN THE PRC

Since 1990s, the IT industry in the PRC has been growing rapidly. During the Eighth Five Year Plan, computer industry maintained a compound annual growth rate of approximately 60% and the target of the Eighth Five Year Plan was met a year earlier. The IT industry in the PRC has grown rapidly in recent years with the sale of computer and related products and services growing at an average compound annual growth rate of 34% from 1995 to 1998. It is estimated that by 2003, the PRC market will account for approximately one-third of the total IT market in the Asia Pacific region, excluding Japan, with an anticipated strong growth in the data communications equipment, packaged software and IT services areas.

The following table sets out the annual sale of computer and related products and services in the PRC from 1995 to 1998:

	1995	1996	1997	1998
	<i>(RMB million)</i>	<i>(RMB million)</i>	<i>(RMB million)</i>	<i>(RMB million)</i>
Hardware	47,000	71,500	104,000	115,500
Software	6,800	9,200	11,200	13,800
Information service industry	7,700	11,300	14,800	18,700
Total	<u>61,500</u>	<u>92,000</u>	<u>130,000</u>	<u>148,000</u>

(Source: Almanac of China's Economics 1996-1999)

One of the objectives of the Ninth Five Year Plan introduced by the State in 1996 is to encourage the use of computer and related products and services in various industries in order to modernise the PRC economic infrastructure. In 1998, the total turnover of computer and related products and services in the PRC was RMB148 billion, in which hardware products accounted for approximately 78%, software products accounted for approximately 9.3% and information services accounted for the balance.

The following table sets out the turnover of different types of hardware products in the PRC in 1995 to 1998:

	1995	1996	1997	1998
	<i>(RMB million)</i>	<i>(RMB million)</i>	<i>(RMB million)</i>	<i>(RMB million)</i>
Mainframes	22,270	29,100	45,180	51,510
Peripherals	10,700	19,400	26,970	28,310
Applications	5,200	7,200	10,300	11,500
Networks	1,500	3,000	4,200	5,800
Other components	7,500	12,800	17,350	18,380
Total	<u>47,170</u>	<u>71,500</u>	<u>104,000</u>	<u>115,500</u>

(Source: Almanac of China's Economics 1996-1999)

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According to the statistics of General Administration of Customs in the PRC, the aggregate value of imports and exports of computers and related products amounted to approximately US\$957.8 million in 1998. Of this aggregate value, the total exports recorded approximately US\$688.6 million, representing approximately 71.9% of the total imports and exports in the corresponding year, leading to a trade surplus of approximately US\$419.4 million. Since 1991, the ratio of export-to-import of computers and related products and services has been gradually increased. It demonstrates an upsurge in the needs for the PRC manufactured computers and related products and the gradual improvements of the technology and quality of the PRC manufactured computer products.

SOFTWARE MARKET IN THE PRC

The software development industry in the PRC can be categorised as (i) system software, (ii) support software and (iii) application software, which has been extended to various sectors of the PRC economy, including military, trade, manufacturing, finance, retail and other services industries. Owing to the Asian financial turmoil in 1997, the software development industry in the PRC was adversely affected and grew less rapidly in 1998. Total sales of software in the PRC amounted to approximately RMB13,800 million in 1998. The Directors anticipate that the PRC is expected to enjoy a growth rate of over 40% in software sales in the coming five years. Domestic software products mainly focus on software applications. Only a few software product focus on operating systems, database, language, networking/communication, development tools and utilities software. Therefore, the Directors believe that the PRC software market, in particular, in the fields of networking/communication where the Company operates, is largely untapped and therefore has a promising future.

ICs MARKET IN THE PRC

The following table sets out the relevant statistics of ICs in the PRC from 1995 to 1998:

	1995	1996	1997	1998
Annual production (<i>million units</i>)	510	758	2,110	2,710
Annual sales (<i>RMB million</i>)	2,600	2,760	5,420	6,160
Imported ICs (inclusion of microelectronics components) (<i>million units</i>)	5,900	6,910	9,560	11,600
Imported ICs (inclusion of microelectronics components) (<i>US\$ million</i>)	2,200	2,700	3,490	4,530
Exported ICs (inclusion of microelectronics components) (<i>million units</i>)	900	1,280	2,490	3,160
Exported ICs (inclusion of microelectronics components) (<i>US\$ million</i>)	370	596	855	940

(Source: *Almanac of China's Economic 1996-1999*)

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The annual ICs production output in the PRC registered a compound annual growth rate of 74.5% from 1995 to 1998. The total imports and exports of ICs (inclusion of microelectronics components) in 1998 were approximately US\$4,530 million and US\$940 million representing annual growth rates of 29.8% and 9.9% as compared to those in 1997. Given the upsurge in demand for ICs, especially with microelectronics components, in the PRC and the State's effort in science and technology development, the Directors anticipate that the outlook of the ICs market in the PRC is promising.

CRYPTOGRAPHY

Nowadays, there is a valid fear that data can be viewed or altered in transit or used by people maliciously to create lawsuits or fraud. Many companies enter into transactions over networks, which if viewed by an eavesdropper, can have negative consequences. Data encryption is designed to protect sensitive data.

Cryptography is a technology that helps to ensure that private communications remain private. The essence of cryptography is the use of an algorithm to combine a key with clear text (which is unencrypted data) in order to change it into a series of seemingly random bits. This encrypted data, or ciphertext, can then be transmitted via whatever means available and subsequently decrypted on the receiving side, where it becomes meaningful data again. The ciphertext is meaningless to an eavesdropper attempting to discover what the transmission is, or possibly worse, attempting to change the contents of data to alter its meaning. The most important thing about a cryptographic system is the degree of difficulty for a hacker to decipher the contents of the ciphertext. Therefore, in any cryptographic system, great lengths are taken to protect the secrecy of the encryption key.

NETWORK SECURITY SYSTEM

In light of the rapid development of national information infrastructure, the use of Internet services has provided a significant convenience to various economic sectors. The migration of data from tightly controlled mainframe computers onto LANs, workstations and PCs and connectivity of an organisation's network to the Internet have created security protection related issues. Many networks now having proprietary rights, intellectual property and other sensitive data are being carried by insecure network protocol. Today, firewalls represent the most common form of network security, forming barriers to entry into an organisation's network. However, the hacker community has developed innovative techniques for circumventing firewalls. Thus, a need has evolved in the industry for the implementation of comprehensive monitoring of network and real-time response to security violations by using the equipment that could increase the level of security by using effective encryption algorithm.

SMART CARD

Smart card products are typically the size of a plastic credit/debit card containing an integrated circuit chip which can process and store information. Today's smart cards typically have the processing power of an early 1980's vintage personal computer, minus a keyboard, display and power supply. Because smart cards are really portable computers, they can be programmed to perform virtually any function which can be implemented by software in the

available memory space. Smart cards benefit directly from ongoing advances in semiconductor technology making available continuously increasing performance and features at declining cost.

There are two basic types of generic smart cards, memory cards and microprocessor cards, each of which can interface between the smart card and a terminal on a contact or contactless basis. Memory cards are typically used to store and retrieve information only and do not have the capability of performing complex processing of information. Microprocessor cards are true “smart” cards in that they contain a central processing unit within a chip which can perform a number of functions, including complex arithmetic operations required for security.

GPS

In 1973, the US Department of Defense started to organise the navy, army and air force to jointly explore and develop a new generation of satellite navigation system. However, over the past 10 years, GPS has evolved far beyond its military origins. It has now become worldwide information resource supporting a variety of civil, scientific and commercial functions ranging from air traffic control to the Internet. Currently, the signals transmitted from GPS satellites, which can help calculate location of objects on earth, are available worldwide at no charge and business people have been applying it for commercial use. This is now known as “Navigation System Timing and Ranging/Global Positioning System (NAVSTAR/GPS) and commonly known as Global Positioning System (GPS)”.

The main features of GPS are as follows:

- *Global surface coverage.* Since there are numerous GPS satellites evenly distributed, one can continuously observe at least 4 satellites at the same time from any location on earth. Thus, it can ensure continuous three dimension global positioning.
- GPS can provide its users with the signals of the three dimension location, speed and time of the moving objects.
- *Real time positioning.* When applying GPS to navigation, it can ascertain the three dimension location and speed of the moving objects. Therefore, it can ensure the moving vehicle move in accordance with the scheduled route. It can also monitor and amend the navigation route on a real time basis and choose the best route.
- *Comprehensive application.* As the positioning technology of GPS develops, the realm of its application keeps widening. Nowadays, in respect of navigation, it has been applied to navigation of the moving objects at the sea, in the sky and on the ground. Moreover, it has also successfully been applied in monitoring and management of moving objects and the alarm and rescue of moving objects. In respect of surveying, application of the technology of GPS in the areas of land surveying, engineering surveying, engineering and earth crust transformation monitoring, landscape surveying, aero-photography surveying, etc, is very common.

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The main function of the user facilities is to receive the wireless radio signals transmitted by the GPS satellites so as to obtain the necessary positioning data and observation information and finish the work of positioning after processing such data.

The user facilities comprise the GPS receiver hardware, the data processing software, the microprocessor and the terminal facilities.

Since the GPS technology and the modern development of the US defense are closely related, the US government restricts the positioning accuracy effected by the users applying GPS in the interest of the US security. Not only is encryption adopted in the design of the system but various techniques are also adopted and may be adopted in the operation of the system for restriction of accuracy of the information obtained by the users using GPS. However, the users may use the GPS differentiation technique to minimize the effect of such restriction.

During the Ninth Five Year Plan (1996-2000), the permanent GPS network and the related data transmission, communication and handling network facilities in the PRC has been consummated and expanded through the application of earthquake monitoring network science project and existing GPS station in the PRC as a result of which a comprehensive GPS service system has been developed in the PRC. Such system generally covers the following areas:–

- (1) establish, protect and coordinate permanent GPS station's collection, transmission and handling of network data;
- (2) provide GPS related information services, for instance, ephemeris, time difference, coordinate and their changes, etc;
- (3) provide the correctness of the positioning and navigation related signals leading to a modernised real time positioning system;
- (4) provide other related information, for instance, earth movement, density of ionised layer, concentration of atmospheric vapour and related figures for reference.

It is expected that the development of such system will contribute substantially to the resources and environment protection and management, fire hazard protection, economic development, state's defence, and continual prosperity of the society.

WFAS

The industry of wireless fire alarm system is still in its infancy in the PRC. The Directors believe that the Company is currently one of the few manufacturers in the PRC which is capable of manufacturing wireless fire alarm system. Currently, fire alarm systems manufactured and installed in the PRC, except for those from the Company, are wire systems that have higher rate of false alarm as compared to wireless fire alarm systems. Since wireless fire alarm system is relatively new in the PRC, currently there is no particular regulation governing the quality of wireless fire alarm systems. However, it is expected that the relevant authorities will promulgate new regulations that set out wireless fire alarm system's quality standard in the foreseeable future.