

Industry Leader

KSIA Vice Chairman & CEO
Doug-young Joo

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Korean Semiconductor Industry Global Leadership With 'Blue Ocean' Strategy



10,000 Won / US\$8



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Current Position : President, Korea Institute of Industrial Technology

Career

Mar. 2005 Vice Chariman & CEO, Korea Semiconductor Industry Association
Aug. 2001 President, Korea Institute of Industrial Technology
Jan. 1991 President, Agency for Technology & Standards, MOCIE
Feb. 1996 Commercial Counselor of Korean Embassy in U.S.A.
Jan. 1994 Director General of Industrial Technology Policy Bureau
Jan. 1993 Director General of Machinery Industry Bureau in the Ministry of Commerce,
Industry & Energy(MOCIE)
Jan. 1992 Director of the Technology Headquarters at the Korea Train Express
Nov.1989 Director of Technology Policy Headquarters at the Korea Institute of Industrial
Technology
Sep. 1982 Director of Department of International Trade and Industry
Jan. 1978 Director of Department of Energy-Resources
Jan. 1975 Deputy Director at the Ministry of International Trade and Industry
Feb. 1966 Administrator of the Korea Development Bank

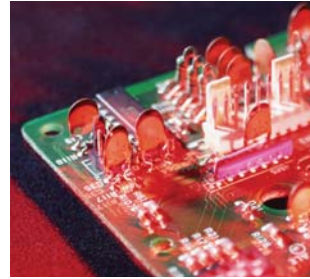
Education

1966 B.A. in Mechanical Engineering, Seoul National University.
1981 M.B.A. in International Management, George Washington University in U.S.A.
1987 Ph.D in Management(Marketing), Chungang University.
1982-1992 Professor of International Management at the Graduate School of International
Management of Chungang University

Global Leadership with 'Blue Ocean' Strategy

Korean semiconductor industry's dynamic growth and current status

Since the Korean semiconductor industry entered a full-scale investment stage in the early 1980s, it has achieved high-speed growth and development, becoming the world-leader in the DRAM semiconductor field.



Prior to the 1980s, the

domestic semiconductor industry was focused on production of transistor-based devices and OEM-based fabrication, largely through tie-ups with foreign-invested companies located in Korea.

In 1992, Korea developed a 64 mega DRAM semiconductor chip for the first time in the world and then proceeded to be the first to develop four consecutive generations of (64M-4G) DRAMS. This year, the domestic industry introduced the world's first 16Gb NAND flash memory chip, cementing its position as the kingpin of the global semiconductor industry.

The industry has also made a significant contribution to the nation's position as a top 12 global trader, as semiconductors have been Korea's leading export item in terms of value since 1992. In 2004, semiconductor exports reached US\$26.5 billion, accounting for 10.4% of the nation's total exports. This year, its exports are projected to hit US\$31 billion, confirming the dynamic growth of the industry.

The Korean semiconductor industry's rise in a difficult environment has been largely attributed to outstanding entrepreneurship, timely large-scale investments, pursuit of joint development and government support for the establishment of a collaborative system.

Presently, Korea's semiconductor industry is number one in the world in the memory sector in terms of production. However, the industry still has vulnerabilities, especially a lack of design technology. Its non-memory production accounts for less than 2% of global production, while the equipment and materials industry remains weak as a result of a lack of basic technology and facilities, depending on imports for 80% of the total domestic demand for equipment and materials.

The Korean semiconductor industry's rise in a difficult environment has been largely attributed to outstanding entrepreneurship, timely large-scale investments, pursuit of joint development and government support.

Korean semiconductor industry's vision & development roadmap

The Korean semiconductor industry has targeted the number two position in the global semiconductor industry by 2015 from its present third place. To reach its goal, the industry needs to maintain its supremacy in the memory field while pursuing intensive R&D in the system IC area.

In this context, the Korean efforts are focused on securing technological competitiveness in system-on-chip (SoC) products, leveraging accumulated memory sector production technology and capitalizing on the ripening of domestic demand for digital household products.

Now, it is necessary to dust off the fixed concept that a memory semiconductor is largely dependent on process technology and a non-memory sector on design technology. Instead, it is vital to secure cutting-edge technologies in both areas and to combine them, leading to the development of a system IC industry.

Consequently, based on the strength of its basic memory technology, Korea is moving to reinforce R&D in system IC. Also, it has the advantage of competitive muscle in the digital consumer and mobile device arena. Through the linkage new market-creating systems, Korea is mapping out affective R&D and commercialization strategy.

The Korean initiative includes the cultivation of high-caliber manpower in the engineering and design fields and development of core technology. Furthermore, it will concentrate on distribution, next-generation process technology development and the equipment and materials industry, to upgrade the semiconductor industry for the next decade.

Vision of 2015 Korea's Semiconductor Industry

		2004	2015
Export		US\$26.5 billion	US\$76 billion
World market share	All	10%	20% (2nd in the world)
	Memory	38%	55% (World top)
	System semiconductor	2.1%	12% (3rd in the world)
	Foundry	3%	10% (2nd in the world)
Localization rate of equipment		18%	50%
Localization rate of materials		50%	75%

Need for R&D cooperation at home and abroad

To secure competitiveness in semiconductors, it is necessary to develop state-of-the-art process technology, secure various core intellectual properties, preoccupy standardization of system semiconductors and cultivate core manpower.

Against this backdrop, Korean semiconductor circles are making efforts to form cooperative alliance among industry, academia and research institutes in pursuit of common benefits.

Domestic R&D cooperation has three primary elements:

First, transitioning from a memory-oriented semiconductor industry to the pursuit of a non-memory-focused system semiconductor industry;

Second, restructuring of the semiconductor industry through cooperation with system semiconductor industry users, designers, manufacturers, etc.; and

Third, developing processes for nano semiconductors. Various joint development projects are underway through alliances among enterprises, academia, research institutes and government agencies. One of the exemplary project is 'System IC 2010.'

In addition, Korea's industry is expanding the scope of international cooperation with foreign counterparts. Korean semiconductor circles are planning an international R&D project related to the establishment of a Northeast Asian R&D hub. Other global-scale projects include participation in international standardization sector-by-sector, joint pursuit of IP nation-by-nation and establishment of a global distribution system. Furthermore, Korea is conducting joint research in cooperation with renowned foreign organizations like SEMATECH (Semiconductor Manufacturing Technology) and IMEC (Interuniversity MicoElectronics Center). Following the '2004 WSC (World Semiconductor Council)' last year, Korea will host ITRS (International Technology Roadmap for Semiconductors) conference this year. These conference are focused on an international R&D cooperation system.

Now, Korea is planning to establish a semiconduction Industry Development Cooperative Council with representative participation from related fields of industry, academia, research and government. This effort will provide further momentum to stimulate cooperation among key sectors. At the same time, Korea will pursue initiatives for international cooperation projects, including joint R&D, manpower exchanges and standardization cooperation. All these efforts are expected to bring a second take-off for the Korean economy, facilitating the construction of "Semicon-Korea" and eventually leading to the common prosperity of everyone around the world.

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Global branding of SEDEX

SEDEX is now in its seventh year and has become the largest semiconductor-specialized exhibition in Korea. Despite the global trend of declines in exhibition participation, SEDEX has scored an expansion of more than 200% over the past four years.

Korea has sufficient stature to become an axis of international semiconductor exhibitions.

Presently, Korea's semiconductor trade volume stands at US\$60 billion a year, US\$30 billion in exports and a similar amount in imports, representing about 20% of the global semiconductor market.

Mirroring the Korean determination to make SEDEX a global brand, the exhibition name will be changed to I-SEDEX(International SEDEX). The organizer, the Korea semiconductor Industry Association (KSIA), visualizes SEDEX as the hub of Northeast Asian semiconductor exhibitions. It is also mapping out various action programs to support SEDEX's expansion, specialization and globalization. The basic philosophy behind the exhibition, however, remains the same as before - to be perceived by participants as the best marketplace in the industry, as a fertile venue for the identification of the latest technology trends, and as a Mecca for the acquisition of management know-how in the field.

Under a "Blue-Ocean Strategy" to develop new markets across the world, SEDEX's policy is to be an exhibition of the clients, by the clients and for the clients. In the drive to build a foundation as a global brand, SEDEX organizers are making every effort to attract the key players in the domestic semiconductor industry, inviting procurement officials from major conglomerates to ensure outstanding business results for exhibitors. Moreover, an international symposium and several related auxiliary events are organized in conjunction with the exhibition to maximize the synergy effect for client satisfaction.



Show Highlights

A Customer-Oriented Exhibition

Tailored to meet the needs of participants, SEDEX makes every effort to fulfill its invitation to prosperity. World-renowned domestic semiconductor giants will have procurement and marketing officials available at the exhibition to meet potential suppliers and buyers from around the world. Under its customer-first policy, SEDEX has invited key buyers that have been specifically designated by the exhibitors. Continuing this customer orientation on site, pavilions are arranged and organized to meet specific demand categories.

New Tech, New Trends

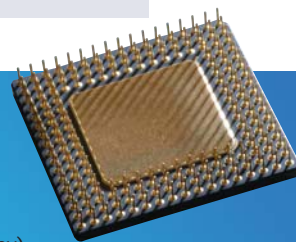
Korea has earned the reputation of being the semiconductor kingpin of the world. At SEDEX, participants will feel the pulse of the nation's dynamic semiconductor industry, especially the opportunity to see the latest technologies, new products and cutting-edge trends. Invited specialists will participate in complementary programs to provide insights into products and core knowledge essential to future business prosperity.

Next-Generation Dynamo

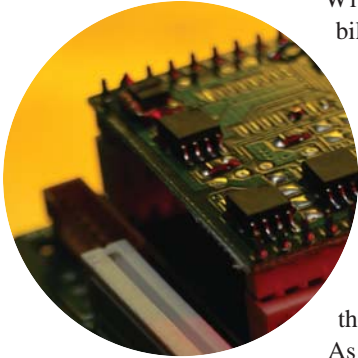
Mindful of the requirements of buyers, exhibitors and visitors, SEDEX knows that it is important to ensure that the future is better than today. As most agree that the semiconductor industry is the cornerstone of IT advances, the number of participants in SEDEX has been growing rapidly each year. Furthermore, the trade show has strong government support as a next-generation exhibition. SEDEX officials are dedicated to building it into a global exhibition brand.

SEDEX '05 Outline

- **Period:** 2005. 9. 28(Wednesday) ~ 9. 30(Friday)
- **Venue:** COEX Pacific Hall(1 floor)
- **Organizer:** Korea Semiconductor Industry Association, Consortium of Semiconductor Advanced Research
- **Support:** Ministry of Commerce, Industry & Energy, Ministry of Science & Technology, Korea Vacuum Research Association, Semiconductor Equipment Technology Education Center, The Micro Electronics & Packaging Society Korea
- **Supporter:** Samsung Electronics, Hynix Semiconductor, Dongbu-Anam Semiconductor, Fairchild Korea Semiconductor, KEC



Meeting Demand of the Mobile, Information Era An Engine for Global Economic Growth



With its 20 trillion won production and US\$14.3 billion exports, the semiconductor industry in Korea is still remaining as the core business for the nation's economy.

In the case of 2001, for example, Korea's semiconductor exports accounted for 9.5% of the nation's total exports in the year, while memory semiconductors, DRAM, etc., occupied 41.5% of the global market.

In 2003, the growth of the world semiconductor market was projected to grow 15~20%, and Korea targeted to export US\$20 billion, up 20.3% from the previous year.

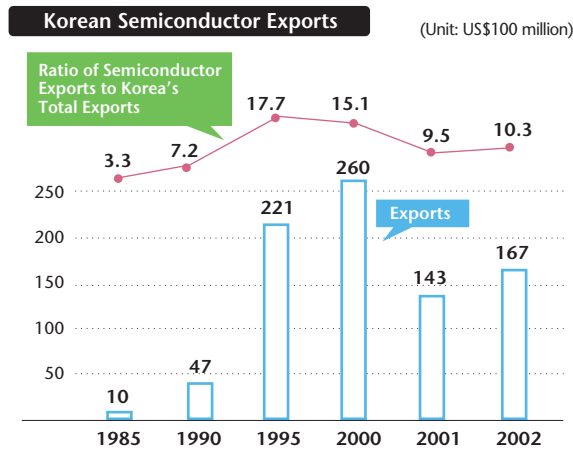
As part of its efforts to expand semiconductor-specialized manpower supply, an industry-academia-research institute joint 'Countermeasure Council for Semiconductor Technology Manpower' has been organized..

Also to nurture high-class technology manpower through innovation of the semiconductor research foundation, Seoul National University, Kyungpook National University and Chonbuk National University have been designated as research institutions for four years (2003~2004). Efforts are being made as well to enhance SoC designing capabilities through establishment of an SoC specialization research foundation.

For strategic development of next-generation semiconductor technologists, R&D capabilities are being injected into those selected fields with greater development potential (50 nano-class process tech, post memory, Korean-type IC, etc.). The second-phase development of SIC compound semiconductors with high growth potential also will continue.

In addition, promotion of joint R&D between the core equipment and materials developing and the demanding business communities is being encouraged, including securing of sales channels for semiconductor equipment and parts through reliable technology assessments. To this end, a semiconductor equipment and parts testing center has been established in Chungcheongbuk-do as a regional economic promotion project.

The industrial development foundation of foundries also will be reinforced by inducing foundries and design firms to research joint cooperation models and open regular roundtable meetings between them as a means of expanding the low stratum of the semiconductor industry.



Rank	Company	Market Share
1	Intel	20.0
2	Samsung Electronics	12.2
3	ST Micro	9.1
4	Toshiba	8.8
5	AMD	7.6
6	Fugitsu	7.1
7	Sharp	4.4
8	Sandisk	4.2
9	Ace D	4.0
10	Macronics	3.8