THE PRIME MINISTER	THE SOCIALIST REPUBLIC OF VIETNAM Independence - Freedom - Happiness
No. 1018/QD-TTg	*Hanoi, September 21, 2024*

DECISION

Promulgating the Strategy for development of Vietnam's semiconductor industry through 2030, with a vision toward 2050[1]

THE PRIME MINISTER

Pursuant to the June 19, 2015 Law on Organization of the Government; and the November 22, 2019 Law Amending and Supplementing a Number of Articles of the Law on Organization of the Government and the Law on Organization of Local Administration;

Pursuant to the June 29, 2006 Law on Information Technology;

Pursuant to the Political Bureau's Resolution No. 52-NQ/TW of September 27, 2019, on a number of guidelines and policies for proactive participation in the Fourth Industrial Revolution;

Pursuant to Resolution No. 29-NQ/TW of November 17, 2022, of the 13th Party Central Committee, on further acceleration of national industrialization and modernization through 2030, with a vision toward 2045;

Pursuant to the Government's Resolution No. 01/NQ-CP of January 5, 2024, on major tasks and solutions to implement the 2024 socio-economic development plan and state budget estimates;

At the proposal of the Minister of Information and Communications,

DECIDES:

Article 1. To promulgate the Strategy for development of Vietnam's semiconductor industry through 2030, with a vision toward 2050 (below referred to as the Strategy), with the following contents:

[1] Công Báo Nos 1081-1082 (07/10/2024)

I. CONTEXT

1. The global semiconductor industry is undergoing major changes and adjustments with emerging trends, bringing about opportunities to promote self-reliance and develop the national semiconductor manufacturing capacity.

The semiconductor industry, with its key role in the digital economy, is increasingly asserting its important position in the context of the world entering the era of the Fourth Industrial Revolution (Industry 4.0). Semiconductor products have been widely applied in different socio-economic activities.

Previously, the global semiconductor supply chain developed in the direction of high specialization, concentrated in a few countries, regions, and territories; there is no country that can completely be self-sufficient in the semiconductor industry. Over the recent years, fierce competition has occurred among big countries, necessitating the adjustment of strategies for the semiconductor industry toward improving domestic capacity and promoting diversification of the supply chain.

2. Vietnam has advantages in terms of geopolitics and human resources in the semiconductor industry. This is an opportunity for Vietnam to participate more deeply in the supply chain of the global semiconductor industry.

Vietnam lies in the center of the region that makes up 70% of the global semiconductor industry's production output; has a stable political system, and belongs to the group of fastest growing countries; and boasts strategic partnerships with many semiconductor powers.

Vietnam has potential for rare earth reserves, which are estimated at about 20 million tons. Vietnam is one of the 16 most populous countries in the world with a young population, possessing human resources with science, technology, engineering, and mathematics (STEM) capacity, and being able to quickly meet the labor demand for development of the semiconductor industry.

At present, the Communist Party and State of Vietnam give a top priority to developing the semiconductor industry. Resolution No. 29-NQ/TW of November 17, 2022, of the 13th Party Central Committee, on further acceleration of national industrialization and modernization through 2030, with a vision toward 2045, identifies the priority for developing foundation industries and technology-intensive industries, building Vietnam's industrial sector to be strong and self-reliant.

These are potential advantages for Vietnam to participate in different stages of the global semiconductor supply chain, striving to develop a complete domestic semiconductor ecosystem.

II. FORMULA FOR DEVELOPING VIETNAM'S SEMICONDUCTOR INDUSTRY

The Strategy sets out the path for developing Vietnam's semiconductor industry through 2030, with a vision toward 2050, according to the following formula:

C = SET + 1

In which:

C: Chip (semiconductor chip);

S: Specialized (specialized chip);

E: Electronics (electronics industry);

T: Talent (human resources);

+ 1: Vietnam (a safe new destination for the global supply chain in the semiconductor industry).

1. Regarding semiconductor chips

Internet of Things (IoT) and artificial intelligence (AI) are the core technologies of Industry 4.0. IoT is for digitizing the real world, creating a digital world, and creating data. AI is for processing data and creating new values. The core of IoT and AI is semiconductor chips.

The semiconductor industry and semiconductor chips have been present in most devices and all aspects of social life, have changed and shaped, are changing and shaping, and will change and shape the world; and greatly affect economic security and national defense and security. The semiconductor industry is part of a very large picture of a global nature, that is digital transformation.

2. Regarding orientations for specialized chips

Industry 4.0 is related to the core technologies of AI, IoT and industrial automation. These applications require very high computing performance, big data processing capacity, and quick response time. Specialized chips are designed to optimize these needs, helping achieve a better performance than that of general-purpose chips. In addition, specialized chips are needed to meet specialized requirements such as requirements on low power consumption for IoT, and high security features for national key industrial systems, and specific requirements for such fields as telecommunications, health, transportation, and energy.

General-purpose chips cannot be used at their full capacity when applied in specialized applications, leading to waste, especially in terms of power sources,

and high costs. There are only few firms that can manufacture general-purpose chips. Specialized chips are very diverse, creating many opportunities for manufacturing enterprises and promoting technological innovation.

While general-purpose chips are the representative of Industry 3.0, specialized chips represent Industry 4.0. The countries that come later in the semiconductor industry must start from specialized chips.

3. Regarding orientations for the electronics industry

The development of Vietnam's semiconductor industry must go hand in hand with development of the electronics industry and digital transformation industry in order to create outlets for semiconductor chips. Semiconductor chips constitute an important input component of electronic devices. If manufacturing only semiconductor chips, this will depend on outlets and electronic device manufacturers. Countries that have recently made breakthrough developments such as Japan, the Republic of Korea, Taiwan (China), etc., all own developed electronics industries.

The electronics industry is witnessing a new wave, that is AI. New-generation electronic devices need to be smartened by AI. AI chips will be the brain of new-generation electronic devices. Vietnam will be one of the leading countries if following this path; this is an opportunity for Vietnam to develop the electronics industry, creating outlets for semiconductors, especially specialized chips.

The electronics industry, covering consumer electronics and specialized electronics used in different sectors (telecommunications, health, energy, automotive, aerospace, and national defense and security, etc.), is much larger than the semiconductor industry. The size of the digital transformation industry is even much larger than that of the electronics industry. Through digital transformation and digitization of the real world, the demand for specialized semiconductor chips for the electronics industry and the digital transformation industry is many times larger than the demand for traditional electronic devices; in addition, specialized chips are easier to produce and less costly than general-purpose chips.

4. Orientations for human resources and talents

The first step of the Strategy is to develop Vietnam into one of the global human resource centers for the semiconductor industry, then striving to build the semiconductor industry in Vietnam. The global human resource center will supply not only human resources for Vietnam but also human resources for export processing and labor export in the semiconductor industry. Human resources will

create advantages to attract investment in research, design, manufacturing, packaging, and testing in Vietnam.

With the ability to quickly meet labor needs through reskilling and upskilling the abundant available workforces who are electronics, telecommunications, information technology, and digital technology engineers, along with the advantage of possessing STEM-capable human resources, Vietnam is one of the most advantageous countries in the world to become a global human resource center for the semiconductor industry. Human resources are the pivot and the foundation for Vietnam's semiconductor industry.

To develop human resources both extensively and intensively, regarding human resources as the top priority and the decisive factor; to intensify training human resources and promote human resource advantages (especially STEM-capable human resources) for Vietnam to become one of the global human resource centers for the semiconductor industry, capable of meeting human resource needs for all stages in the semiconductor manufacturing process.

The preparation of human resources will be conducted based on long-term forecasts and vision, but still need to closely adhere to market demands. To promote the signing of commitments on human resource demands between training institutions and semiconductor enterprises at home and abroad to create employment, thus ensuring success of training activities. At the national level, the Government will conclude national cooperation agreements on supply of semiconductor workers with the countries that are facing semiconductor workforce shortage.

In addition to long-term training such as STEM training from the level of general education, university and postgraduate, it is still necessary to focus on rapid short-term training. The best way in the short run is reskilling, upskilling, and newskilling information technology engineers, software engineers and electronics engineers. In order to have sufficient teachers, mentors, physical facilities and curricula, it is needed to seek cooperation between semiconductor enterprises and training institutions and state investment in training institutions. At the initial stage, top priorities are reskilling teachers and attracting foreign semiconductor teachers, particularly overseas Vietnamese teachers.

5. Vietnam's position in the global semiconductor supply chain (+ 1)

The world is restructuring the semiconductor industry toward diversifying supply sources after the "X+1" model, not only in manufacturing but also in all stages of the semiconductor industry. Countries that have had the semiconductor industry or part of the semiconductor industry all want to have another facility in

another country to ensure safety. Vietnam has good strategic relations with most of the semiconductor industry powers, hence the country can be one of these few "+1" countries and attract foreign direct investment (FDI) in all stages of the semiconductor industry.

Vietnam will attract FDI after the (X+1) model. With this model, Vietnam will become the "+1" option, ensuring safety for the global semiconductor industry; Vietnam will not only provide infrastructure facilities in terms of human resources, land, electricity, water, transportation, telecommunications, and tax incentives, but also bring about safety for the semiconductor industry. The semiconductor industry has great impacts on economic security and national defense security, so safety assurance will always be the top priority.

Vietnam has a geopolitical advantage in the semiconductor industry. It lies in the center of the region that accounts for 70% of the global semiconductor industry's production output. Vietnam is a country with a stable political system, belongs to the group of fastest growing countries, and has strategic partnerships with many semiconductor powers. Currently, the Communist Party and State of Vietnam give the top priority to developing the semiconductor industry. These are important factors for Vietnam to become one of the global semiconductor industry centers.

From now until 2050, Vietnam will deploy the formula C = SET + 1 to implement the Strategy with the development viewpoints of starting from human resource training to research, design, packaging, testing, and then manufacturing; promoting strategic cooperation with a number of countries, regions, territories, and important partners in the global semiconductor ecosystem; and combining the role of the State in setting long-term orientations with the flexibility of the market in the short run.

III. VISION TOWARD 2050

Vietnam aims at developing the semiconductor industry by 2050 in a 3-phase roadmap:

Phase 1 (2024-2030): To take advantage in terms of geopolitics and semiconductor human resources, selectively attract FDI, develop the country into one of the global human resource centers for the semiconductor industry, and form basic capacity in all stages of the semiconductor industry, including research, design, manufacturing, packaging and testing.

Phase 2 (2030-2040): The country will become one of the global semiconductor and electronics industry centers; and develop the semiconductor and electronics industries by combining self-reliance and FDI.

Phase 3 (2040-2050): The country will become one of the world's leading countries in the semiconductor and electronics industries; and master research and development activities in the semiconductor and electronics industries.

IV. OBJECTIVES AND DEVELOPMENT ROADMAP

Developing Vietnam's semiconductor industry in the 3-phase roadmap with the following specific objectives:

1. Phase 1 (2024-2030):

a/ To attract FDI in a selective manner, forming at least 100 design enterprises, 1 small-scale semiconductor chip manufacturing plant, and 10 semiconductor product packaging and testing plants; to develop a number of specialized semiconductor products in a number of industries and fields.

b/ The semiconductor industry's revenue in Vietnam will surpass USD 25 billion/year, with the added value in Vietnam mounting to 10-15%; the electronics industry's revenue in Vietnam will surpass USD 225 billion/year, with the added value in Vietnam mounting to 10-15%.

c/ Vietnam's semiconductor industry will have a contingent of over 50,000 engineer's and bachelor's degree holders, with appropriate structure and quantity, meeting development needs.

2. Phase 2 (2030-2040):

a/ To develop the semiconductor industry toward combining self-reliance and FDI, forming at least 200 design enterprises, 2 semiconductor chip manufacturing plants, and 15 semiconductor product packaging and testing plants, thereby gradually becoming self-reliant in specialized semiconductor product design and manufacturing technologies.

b/ The semiconductor industry's revenue in Vietnam will surpass USD 50 billion/year, with the added value in Vietnam mounting to 15-20%; the electronics industry's revenue in Vietnam will surpass USD 485 billion/year, with the added value in Vietnam mounting to 15-20%.

c/ Vietnam's semiconductor industry will have a contingent of over 100,000 engineer's and bachelor's degree holders, with appropriate structure and quantity, meeting development needs.

3. Phase 3 (2040-2050):

a/ To form at least 300 design enterprises, 3 semiconductor chip manufacturing plants, and 20 semiconductor product packaging and testing plants; to master research and development activities in the semiconductor industry.

b/ The semiconductor industry's revenue in Vietnam will surpass USD 100 billion/year, with the added value in Vietnam mounting to 20-25%; the electronics industry's revenue in Vietnam will surpass USD 1,045 billion/year, with the added value in Vietnam mounting to 20-25%.

c/ Vietnam's semiconductor industry will have a workforce with appropriate structure and quantity, meeting development needs.

d/ To enable Vietnam's semiconductor industry ecosystem to become self-reliant and capable of leading in some stages and segments of the production chain.

V. TASKS AND SOLUTIONS

Based on the above contents, the Strategy sets out 5 tasks with specific solutions as follows:

1. Developing specialized chips

a/ To research and develop core technologies and new-generation breakthrough specialized chip products through investment in research centers specialized in core semiconductor technologies, focusing on such fields as AI chips and IoT chips; to adopt mechanisms to support shared-use of infrastructure facilities of laboratories and research institutions; to expand semiconductor research and development and semiconductor technology transfer at the national level and in research institutes, universities, and enterprises.

b/ To develop the domestic semiconductor industry ecosystem, which will be connected with the semiconductor industry ecosystems of strategic partners; to build shared-use platforms and tools to serve innovative startups, training of experts, and design and development of semiconductor chips; to promote the development and use of specialized chips in a number of industries and sectors such as hi-tech agriculture, automation industry, consumer electronics, digital transformation industry, etc.

c/ To formulate mechanisms for the State's special investment and financial incentives and support for building 1 small-scale, hi-tech semiconductor chip manufacturing plant serving semiconductor chip research, design and manufacturing.

d/ To help enterprises and research and training institutions place orders for semiconductor chip manufacturing according to the multi-project wafer model in order to save time and manufacturing costs, and promote research projects and startups in the semiconductor industry.

2. Developing the electronics industry

a/ To concentrate on allocating resources for research and development of electronic devices, focusing on specialized chip- and AI chip-integrated new-generation electronic devices.

b/ To adopt policies on prioritizing the use of the state budget to procure domestic electronic devices so as to promote and develop the electronics industry market.

c/ To support and promote domestic groups and large enterprises to manufacture new-generation electronic devices, striving to develop them into multinational enterprises so as to increase global competitiveness and develop international markets; to adopt incentive mechanisms to encourage digital technology enterprises to invest in manufacturing new-generation electronic devices; to facilitate innovative startup activities in the semiconductor and electronics industries.

d/ To develop an ecosystem of supporting industries, promote technology transfer, and accelerate formation of joint ventures and affiliations with foreign enterprises to serve the manufacturing of new-generation consumer and specialized electronic devices.

dd/ To assis and help Vietnamese semiconductor and electronics enterprises participate in the National Branding Program, targeting domestic, regional and international markets; to promote trade and investment in semiconductor and electronics industries in key markets; to select a number of semiconductor and electronic products for inclusion in the National Product Development Program.

3. Developing human resources and attracting talents in the semiconductor industry

a/ To formulate, and organize the implementation of, the Scheme on development of human resources for the semiconductor industry up to 2030, with a vision toward 2050. To attach importance to, and prioritize, reskilling, upskilling and newskilling abundant available workforces who are electronics, telecommunications, information technology, and digital technology engineers, along with the advantage in terms of STEM-capable human resources based on long-term forecasts and vision, and in adherence to market demands.

b/ To provide financial support for training, formulation of curricula, and research activities at the university and postgraduate levels; to invest in and procure modern equipment for training institutions and research institutes; to develop data centers and supercomputer systems to serve research, training and development activities in the semiconductors and electronics industries and new digital technologies such as AI, cloud computing, etc.

c/ To formulate breakthrough mechanisms and policies to attract and nurture talents and world-class experts in the fields of semiconductors and electronics at home and abroad; to connect top domestic and international experts, particularly Vietnamese experts working abroad, to form the Vietnam Innovation Network in the semiconductor industry.

d/ To enter into national cooperation in supplying semiconductor workers with a number of countries that are facing workforce shortage; to promote the signing of commitments on human resource demands between training institutions and semiconductor and electronics enterprises at home and abroad so as to create employment, thus ensuring the success of training activities.

4. Attracting investment in the semiconductor industry

a/ To formulate mechanisms on provision of the highest incentives from the sources of central and local budgets to selectively attract foreign investment projects with high content of technology in the semiconductor and electronics industries; to formulate a single-window mechanism for investment projects in the semiconductor and electronics industries.

b/ To establish an Investment Support Fund to minimize the impacts of the global minimum tax.

c/ To adopt policies to give priority to foreign semiconductor and electronics enterprises that conduct research and development activities in Vietnam, use products and services of Vietnam's supporting industries, or enter into joint ventures and affiliations with Vietnamese enterprises; to create favorable conditions for state enterprises, sole proprietorships, large enterprises, and small- and medium-sized enterprises to enter into joint ventures with foreign enterprises in the semiconductor and electronics industries.

d/ To establish a green-lane mechanism and other mechanisms to create favorable conditions for supporting enterprises, and enterprises importing and exporting goods, raw materials, supplies and components related to the semiconductor industry, and new-generation consumer and specialized electronic devices.

dd/ To invest in developing digital infrastructure, electricity infrastructure, and water supply and drainage infrastructure, and apply electricity and water price support mechanisms to meet the requirements of semiconductor and electronic device manufacturing plants in planned areas; to prioritize the development of renewable energy and green energy to serve the semiconductor and electronics industries.

5. Other tasks and solutions

a/ To establish the National Steering Committee for Development of the Semiconductor Industry (below referred to as the Steering Committee), headed by the Prime Minister. The Steering Committee is an interdisciplinary coordination organization, having the function of assisting the Government and Prime Minister in studying, directing, and coordinating the settlement of important, interdisciplinary issues related to promoting the development of the semiconductor industry in Vietnam.

To establish the Semiconductor Industry Advisory Expert Group (below referred to as the Expert Group). The Expert Group is a professional independent advisory body with a strategic vision and is established to provide in-depth knowledge and analyses on technical issues to advise and assist the Steering Committee and the Prime Minister in directing and orienting the development of the semiconductor industry in Vietnam.

The Expert Group will be composed of the Minister of Information and Communications as its head and representatives of associations, unions, enterprises, research and training institutions, and leading experts in the semiconductor industry as its members.

b/ To formulate/apply the system of Vietnam's standards and technical regulations (TCVN/QCVN) to improve the quality of semiconductor and electronic products; to form and recognize a system of quality assessment organizations, and testing and inspection centers for semiconductor and electronic products and services.

c/ To add expenditure items for research and development, manufacturing and production of new-generation semiconductor products and consumer and specialized electronic devices in Vietnam to the National Foundation for Science and Technology Development and the National Technology Innovation Foundation.

d/ To promote international cooperation to mobilize resources for the development of Vietnam's semiconductor and electronics industries; to enhance the role of overseas Vietnamese representative missions in promoting international cooperation in the semiconductor and electronics industries.

dd/ To formulate regulations on exploitation, treatment and reuse, and treatment of hazardous wastes in the process of resource exploitation and semiconductor and electronic product manufacturing; to improve environmental treatment capacity, taking advantage of natural resources while ensuring environmental safety; to prioritize promoting green production projects in the

semiconductor industry that meet requirements on energy and resource efficiency and environmental protection.

VI. ORGANIZATION OF IMPLEMENTATION

1. The Ministry of Information and Communications shall

a/ Assume the prime responsibility for, coordinate with, guide, urge, and inspect, agencies, organizations, and enterprises in, organizing the implementation of the Strategy; and annually prepare a report on the implementation of, and propose and recommend new tasks concerning, the contents of the Strategy in conformity with practical situation.

b/ Based on the actual situation after each phase of 2024-2030, 2030-2040, and 2040-2050, assume the prime responsibility for reviewing, assessing, advising, and submitting to the Prime Minister for consideration and adjustment the tasks set in the Strategy to suit the actual situation; and carry out the final review and evaluate the results of the performance of tasks set in the Strategy after it is completed.

2. Ministry of Planning and Investment shall

a/ Assume the prime responsibility for, and coordinate with ministries, sectors, and localities in, prioritizing plans on allocation of investment capital from the state budget for the performance of the tasks set in the Strategy.

b/ Based on the annual state budget fund-balancing capacity, prioritize the allocation of investment expenditures from the central budget for the performance of the tasks set in the Strategy in accordance with the law on public investment and the law on the state budget.

3. Ministries and sectors shall assume the prime responsibility for, and coordinate with other related ministries, sectors, localities, organizations and enterprises in, performing the functions and tasks assigned to them and those provided in the Appendices to this Decision.

4. Provincial-level People's Committees shall

a/ Improve the policy environment within the ambit of their assigned competence to increase attraction of investment in the semiconductor industry.

b/ Propose provincial-level People's Councils to arrange local budget funds to implement the tasks set in the Strategy in accordance with the law on public investment and the law on the state budget.

5. Associations and unions operating in the fields of information technology, electronics and telecommunications shall connect member enterprises that operate

in Vietnam's semiconductor and electronics industries, promote the sharing of information, help their members build relationships, seek business opportunities and connect with international associations, provide supportive services to their members, organize training activities, participate in formulation of standards and technical regulations, and participate in the formulation of policies for Vietnam's semiconductor and electronics industries.

6. To encourage Vietnam's groups, state enterprises, and key enterprises to prioritize the use of domestic semiconductor and electronic products, invest in shared-use design, assembly and testing systems to serve research and development of sample products, and participate in related tasks as stated in the Strategy.

Article 2. This Decision takes effect on the date of its signing.

Article 3. Ministers, heads of ministerial-level agencies, heads of government-attached agencies, chairpersons of provincial-level People's Committees, associations, unions, groups, state enterprises, sole proprietorships, and related organizations and individuals shall implement this Decision.-

Prime Minister
PHAM MINH CHINH

* *The Appendices to this Decision are not translated.*