

China Responds to U.S. Microchip War with Huge Production Mobilization

by Richard Freeman

Jan. 24—The Chinese government is rolling out a very large, ¥1 trillion (\$143 billion) package, to be allocated over five years, mainly as subsidies and tax credits, to build up semiconductor production and research activities in integrated circuits in China. Significant steps in this direction have already been taken. The project was first mooted in October 2022, simultaneous with Chinese President Xi Jinping's speech at the 20th National Congress of the Chinese Communist Party that month, at which he repeatedly raised the issue of China's need for technological advancement.

The production package reflects China's assessment of its own needs, but also comes in response to the Biden Administration's Oct. 7, 2022, announcement of draconian sanctions against all elements of the worldwide supply chain for Chinese computer chip production—strengthened by more sanctions piled on in December. The extent and intensity of the sanctions are clearly designed to severely stunt Chinese computer chip production, a choke point for strangling all portions of its economy.

However, after causing some initial difficulties, this package of severe sanctions will backfire, due to a profound misunderstanding of China's 2,500-year-old Confucian tradition of thinking, and its current, state-led (dirigist) methods. The assault upon China is resulting in its move to leapfrog to world leadership, just as it has done in steel output and high-speed rail development, and is on the verge of doing in space exploration.

The Biden administration's Oct. 7 sanctions prohibit the sale to China of both advanced semiconductors made in the United States, but also those integrated circuits or chips manufactured in other countries with the aid of U.S. inputs—since some elements of U.S.



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Inside ASML's TWINSCAN NXE3400C extreme ultraviolet (EUV) lithography machine, used for producing advanced (7 and 5 nm) microchips. Shown is the EUV source vessel. The U.S. blocked a Chinese company from buying one.

products and U.S. software, however directly or indirectly, are used in the integrated circuits of other countries. This affects most nations. The sanctions also target the manufacturers of the equipment to make chips. For example, the Dutch company ASML makes the extreme-ultraviolet lithography machines needed to print advanced computer chips. The cost per machine is up to \$200 million. A Chinese company contracted to buy a machine from ASML, but the U.S. stepped in to block it.

The sanctions are clothed in national security language. As Thea D. Rozman Kendler, Assistant Secretary for Export Administration at the Bureau of Industry and Security at the U.S. Department of Commerce, put it:

The PRC has poured resources into developing supercomputer capabilities, and seeks to become a world leader in artificial intelligence by 2030. It is using these capabilities to monitor, track and surveil its own citizens and fuel its military modernization. Our actions will protect U.S. national security, and foreign policy.



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An integrated circuit board, containing an assembly of miniaturized electronic components fabricated as a single unit (microchip) on a semiconducting base of silicon. Semiconductors are materials, such as silicon, characterized by electron flow intermediate between conductors and insulators.

New Support Measures

China's State Council, one of the pillars of China's dirigist economy, is directing the \$143 billion package of assistance to China's integrated circuit industry. The State Council has not formally released the plan, but sections of it have been reportedly viewed. The two main parts are:

First, Tax Relief. For example, a Chinese microchip manufacturer that has been in operation for more than 15 years and makes 28-nanometer or more advanced (smaller) chips, will be exempt from corporate income tax for up to 10 years. This will free up funds for these companies to modernize their production process.

Second, Subsidies. Chinese semiconductor firms, and other firms, will be subsidized to purchase domestic semiconductor equipment. For example, such companies will be entitled to a 20% subsidy of the purchase cost of Chinese semi-conductor equipment, according to a Dec. 14 [Reuters article](#).

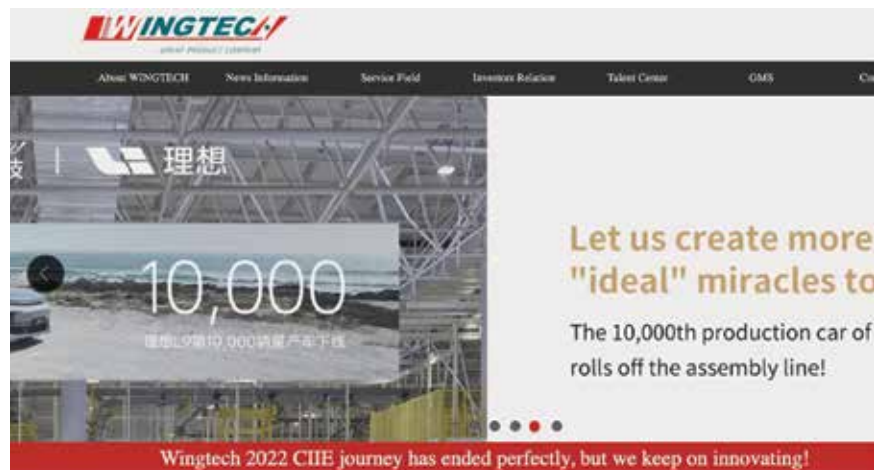
However, this is being built upon an existing foundation. China had lagged significantly behind the United States, Taiwan, and South Korea. In June 2014, the Chinese government published an [action plan](#) titled, *Guideline for the Promotion of the National Integrated Circuit Industry Development*, interlocking with its Five Year Plan, "with the goal of establishing a world-leading semiconductor industry in all areas of the integrated circuit supply chain by 2030." In that same year, Beijing set

up the National IC (Integrated Circuit) Investment Fund with tens of billions of dollars, to invest directly in chip-makers, and in 2020, China announced the additional creation of fifteen local government Integrated Circuit Funds. Together, the national fund and the local funds have dedicated \$73 billion for investment for the expansion or modernization of integrated circuit companies, and for research and development, reports the U.S.-domiciled Semiconductor Industry Association in its July 13, 2021 article, "Taking Stock of China's Semiconductor Industry." "However," the article reports, "this does not account for government grants, equity investment, and low-interest loans, which exceeds \$50 billion."

In toto, taking account of all the Integrated Circuit Funds and the China State Council's package of subsidies and tax credits, between 2014 and 2024 the Chinese government will have advanced, cumulatively, \$265 billion in state-directed funding to all phases of the semiconductor sector—far, far larger than the investment of any other government.

This approach is producing extraordinary results.

In 2015, China supplied 10% of the chips it consumed. In 2022, according to estimates of International Business Strategies, the percentage rose to 26%—and others estimate it produced over 30% of its consump-



Wingtech

The homepage of Wingtech Technology, a large Chinese conglomerate specializing in integrated circuits and optical imaging modules, and in the design, manufacturing, and assembly of products such as mobile phones, servers, tablets, and laptops.

tion. China's goal, as stated in its program, "Made in China 2025," is to reach a level of supplying 70% of the chips it consumes.

New Fabricating Facilities

The chip-industry group SEMI, according to the *Wall Street Journal*, reports that no country is

expanding faster than China in building the fabricating facilities (called fabs) for integrated circuits. Between 2021 and 2024, China is expected to have built 31 major fabs, compared with Taiwan's 19 and the United States' 12—although both the Chinese and U.S. figures could grow under the programs they have initiated.

In this heated environment, China's top integrated circuit producer, Semiconductor Manufacturing International Corp. (SMIC), is investing \$8.9 billion in a wafer fabricating plant, working with local authorities in southeastern Shanghai. It will be focused on producing 28-nanometer chips. Near Shanghai, Wingtech Technology launched in 2022 an automotive chip factory with an annual production of 400,000 wafers. (An integrated circuit is an assembly of hundreds of integrated electronic components, such as resistors and capacitors, fabricated as a single unit, placed on a tiny silicon wafer. The wafer's thickness is specified in nanometers—billionths of a meter.)

Currently, companies like Taiwan's TSMC, the world's biggest microchip maker, produce chips as thin as 3 nanometers (nm). The Chinese cannot do that yet, but they are working on the technology (and some Chinese companies have produced integrated circuits as thin as 5 nm). For the moment, the Chinese are focusing on fabricating power-supply chips of 28 nm (which are already incredibly small). These perform a workhorse function and are widely used in automobiles, many smartphones, and other electronics, including military applications.

While some media deride China, such as the August 11, 2022 *Washington Post* [story](#), "China Has Painted Itself Into a Semiconductor Corner," other media are waking up to the reality, such as the Dec. 13, 2022 *Reuters* [article](#), "China's Massive Older Chip Tech Buildup Raises U.S. Concern." In five years, the British, the United States, and the EU are going to wake-up red-faced, as their chip-war policies will have spirited China to a world leadership advance.

The Schiller Institute

has just released Volume 2, No. 1, of its new journal *Leonore*, which opens with the following from Lyndon H. LaRouche, Jr.'s October 20, 2002, article, "The Historical Individual."

"The principal cause for the doom of any culture, is that mental disorder typical of popular opinion, which is to assume the validity of any assumptions currently adopted by a learned profession, or religious teaching, or more crudely adopted as 'generally accepted popular opinion.'"

The 88-page issue, contains eleven articles, including the first English translation of one of the last letters by the 15th century scientific and political genius, Cardinal Nicholas of Cusa, which has been called his "religious last will," and an original translation of Friedrich Schiller's "On the Sublime," described as "perhaps his most refined discussion of the process of the development of the soul."



Preview

the issue [here](#) and see the full table of contents.

The preview includes the ground-breaking article by Jason Ross, "Vernadskian Time: Time for Humanity," which addresses "the paradoxes posed by Vernadsky's scientific work," which open the way to an entirely new set of definitions of space, time and matter, taken from the standpoint of the human mind.

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