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Why Biden is unleashing a full-scale chip war against China



Computer chip, magnified.

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Technology is the key to the future. It is the basis for military might, on the one hand, and economic productivity and a competitive position in the world market, on the other.

Until recently, the U.S. had an unassailable, dominant position on both fronts. The White House wants to maintain that hegemony at all costs, but the rise of China threatens to put an end to that.

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According to U.S. Presidential Security Adviser Jake Sullivan, “we are facing a competitor that is determined to overtake U.S. technological leadership and willing to devote nearly limitless resources to that goal.” (Sept. 16, whitehouse.gov)

That is why the U.S. has identified the People’s Republic of China as its main enemy and is trying to thwart the economic and technological ascent of this Asian giant.

Chip War

Semiconductors and chips (1) are particularly targeted. This makes sense, because in the future geopolitical supremacy may increasingly depend on computer chips. Chips are integrated circuits that are pretty much the nervous system of electronic devices.

Through the last century, military strength was based on firearms, warships, fighter jets or (nuclear) missiles. In the digital age, chips are the backbone of economic as well as military performance.

According to James Mulvenon, an expert on Chinese cybersecurity, “The Pentagon leaders have decided that semiconductors is the hill that they are willing to die for. Semiconductors is the last industry in which the U.S. is ahead, and it is the one on which everything else is built.” (Economist, May 16, 2019)

In early October 2022, the White House put its money where its mouth is. The Biden administration introduced sweeping export controls that will severely hamper Chinese companies’ attempts to obtain or manufacture advanced computer chips. (China Daily, Oct. 7)

Under Trump, U.S. companies were no longer allowed to sell chips to Huawei. Biden has now extended those trade restrictions to more than 40 Chinese companies, including several chipmakers. The new measure effectively prohibits any U.S. or non-U.S. company from supplying those Chinese companies with hardware or software whose supply chain includes U.S. technology.

The export restrictions not only target military applications but use all means available to seek to block the development of China’s technological power. The strategy is to cut China off from the rest of the world in chip supply chains, in order to deny it the opportunity to fully develop its internal semiconductor industry.

China and technology expert Paul Triolo describes the new measure as a “major watershed” in U.S.-China relations. “The U.S. has essentially declared war on China’s ability to advance the country’s use of high-performance computing for economic and security gains.” (Financial Times, Oct. 7)

Conversely, the U.S. is doing all it can to further increase its technological lead. For example, the White House's National Science and Technology Council has just published a 47-page "National Strategy for Advanced Manufacturing" that includes 11 strategic goals to increase U.S. competitiveness in chips. (whitehouse.gov, October 2022)

Geopolitics aside, the chip industry is also big business. The market capitalization of the largest listed chip firms now exceeds \$4 trillion. China spends more on computer chip imports than on oil.

Quest for allies

Although Biden claims to be eager to work with allies, this chip war was initiated only by the U.S. Experts admit that if other countries continue to supply China, the restrictions will have little effect. The only consequence then is that U.S. chip companies will miss out on the large Chinese market.

In the past, the U.S. already pressured other countries and regions to stop supplying high-tech products to China. In the case of chips, this mainly involves South Korea, Japan, the Netherlands and the de facto autonomous Chinese province of Taiwan. With the new measure, foreign companies working with U.S. technology are now supposed to act following U.S. restrictions. They must seek U.S. permission on a case-by-case basis.

Of course, foreign countries are not eager to comply with the restrictions, because China is a very important, if not the most important, customer. Samsung, for example, is the world's largest builder of memory chips. Partly as a result of the new measure, this South Korean company expects 32% less revenue. It remains to be seen whether and to what extent these countries will seek and find possible loopholes.

Washington especially wants to bring Taiwan along in its isolation strategy. Taiwan accounts for 92% of the world's most advanced chips. For China, imports from Taiwan are economically and technologically vital.

It is in the context of this chip war that the provocative visit by Pelosi and other U.S. politicians to the separatist leadership of Taiwan must be viewed. Mid-September, the U.S. Senate approved a bill providing \$6.5 billion in direct military aid to the island. Washington is putting pressure on China on several fronts.

Chances of success?

Chips are the main engine of electronics. China itself manufactures about 12% of global production. That is by no means enough for its own use. Only one-sixth of what it needs in chips is produced domestically. Moreover, for the time being, it is still unable to produce the most advanced chips.

In other words, in terms of chips, the country is highly dependent on imports. Annually they account for about \$400 billion. If that supply were compromised, it would not only mean a very large economic loss, but it would also seriously undermine technological progress. In this sense, chips are considered the Achilles heel of Chinese industry.

To overcome that dependency and catch up with the technological backlog, China is investing more than any other country in this strategic industry. The country has already made serious progress in a number of areas. For example, it has successfully produced a 7 nanometer chip. (2) This puts it only one or two “generations” behind industry leaders in Taiwan and South Korea.

But with these breakthroughs, it will remain dependent on imports of parts from other countries for the time being. (3) It doesn't have to stay that way. Analysys Mason, a leading consulting firm, says in a recent report that China could be self-sufficient in chips within three to four years.

In any case, the U.S. restrictive strategy will motivate the Chinese government to allocate even more resources and make breakthroughs. On Oct. 3 the Asia Times gave the example of the 2015 blocking of the supply of Intel's high-end Xeon Phi processors to Chinese supercomputer makers. A year later, Chinese researchers developed those processors themselves.

In the past, the U.S. has often succeeded in bringing countries to order and keeping them in line. However, whether it will succeed with China is highly questionable. By the end of this decade, we will know whether the U.S. attempt to neutralize China's chip industry has succeeded or failed.

1. *Semiconductors are electronic components based on semiconductor material. A diode and a transistor are examples of semiconductors. In a sense you can think of semiconductors as the building blocks of chips. Chips are integrated circuits, small in size. They are part of a computer or other electronic devices. In the mainstream media, there is usually no distinction between semiconductors and chips.*
2. *The company in question, SMCI, is reportedly now working on even more advanced 5 nanometer chips.*
3. *For example, China cannot make advanced semiconductor devices without EUV lithography equipment from ASML (Netherlands) and electronic design automation (EDA) tools from Synopsys and Cadence (U.S.) or Siemens (Germany).*

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