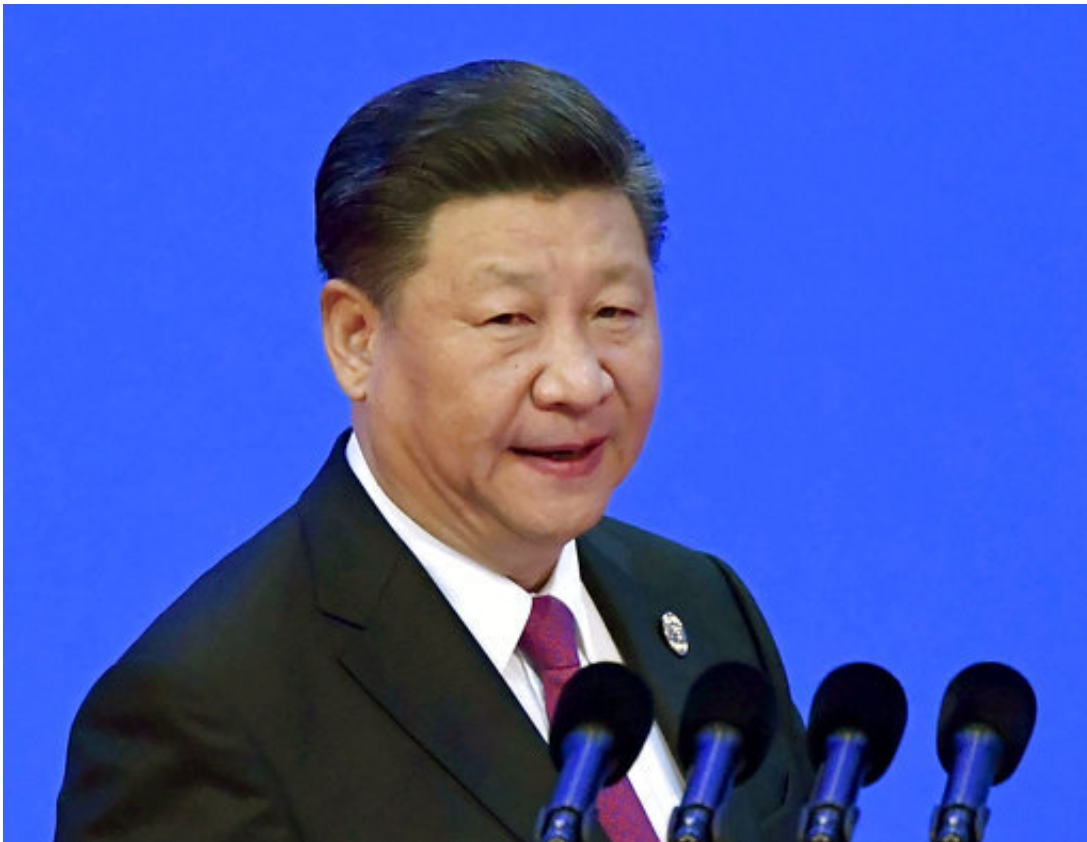


Chip Wars: Tech rivalry underlies US-China trade conflict

May 3 2018, by Kelvin Chan



In this April 10, 2018, file photo, China's President Xi Jinping prepares to deliver his opening speech at the Boao Forum for Asia Annual Conference in Boao in south China's Hainan province. Chinese and American officials will be trying to defuse tensions pushing the world's two largest economies toward trade war in meetings in Beijing beginning Thursday, May 3, 2018. Analysts say that chances for a breakthrough seem slim given the two sides' desperate rivalry in strategic technologies such as semiconductors that underlies the dispute.(Naohiko Hatta/Kyodo News via AP, File)

Chinese and American officials will be trying to defuse tensions pushing the world's two largest economies toward trade war in meetings beginning Thursday where analysts say chances for a breakthrough seem slim given the two sides' desperate rivalry in strategic technologies.

Treasury Secretary Steven Mnuchin and other U.S. officials including Commerce Secretary Wilbur Ross and U.S. Trade Representative Robert Lighthizer arrived Thursday for the talks in Beijing. Liu He, President Xi Jinping's top economic adviser, is heading the Chinese side in the talks.

President Donald Trump said he expected relations with Beijing to remain smooth.

"Our great financial team is in China trying to negotiate a level playing field on trade!" he said on Twitter late Wednesday. "I look forward to being with President Xi in the not too distant future. We will always have a good (great) relationship!"

Regardless of the huge U.S. trade deficit often decried by Trump, Chinese companies are struggling to overtake western industry leaders in advanced technologies, especially for semiconductors, the silicon brains required to run smartphones, connected cars, cloud computing and artificial intelligence.

Under Xi, a program known as "Made in China 2025" aims to make China a tech superpower by advancing development of industries that in addition to semiconductors includes [artificial intelligence](#), pharmaceuticals and electric vehicles. The plan mostly involves subsidizing Chinese firms. But it also requires foreign companies to provide key details about their technology to Chinese partners.

Beijing looks unlikely to cede any ground on that strategic blueprint.

"The Made in China 2025 industrial policy concerns China's long-term development plan, so the overall direction won't change at all," said Yu Miaojie, professor at Peking University's National School of Development. Yu says China would rather cut the trade deficit by importing high-tech products from the U.S. that are currently tightly restricted.

U.S firms gripe that Chinese policies compel them to share technologies in order to gain market access. Those complaints bely Beijing's decades-long, still unsuccessful struggle to catch up, especially in the area of semiconductors.

Washington's recent decision to ban Chinese telecom gear maker ZTE from importing U.S. components in a sanctions-related case drove home to Beijing its costly vulnerability to foreign sources for advanced microchips.

The Trump administration's efforts may actually spur China to ramp up efforts to develop its domestic industry as it strives to fulfill Xi's vision, said Jian-Hong Lin, an analyst at research firm TrendForce.

China will be even more determined "to realize self-reliance in semiconductor technology," he said.

The "Made in China 2025" plan calls for domestic producers to supply 70 percent of the country's chip demand.



In this April 30, 2018 photo, Treasury Secretary Steven Mnuchin speaks during a discussion at the Milken Institute Global Conference, in Beverly Hills, Calif. Chinese and American officials will be trying to defuse tensions pushing the world's two largest economies toward trade war in meetings in Beijing beginning Thursday, May 3, 2018. Analysts say that chances for a breakthrough seem slim given the two sides' desperate rivalry in strategic technologies such as semiconductors that underlies the dispute. Treasury Secretary Mnuchin is leading a delegation of U.S. officials. Liu He, President Xi Jinping's top economic adviser, is heading the Chinese side in the talks.(AP Photo/Jae C. Hong, File)

China now consumes nearly 60 percent of the world's semiconductors but supplies only about 16 percent, according to PWC. The country spends more than \$200 billion a year on foreign-made semiconductors, which in 2015 surpassed crude oil as the country's biggest import.

Experts say increasingly high technological hurdles and a meager talent pool are hindering the effort to catch up with dominant U.S., Japanese,

South Korean and Taiwanese manufacturers.

They say Chinese chipmakers are five years behind their U.S. and Asian rivals when it comes to leading edge chip technology, and have made no progress in recent years. Those advanced chips are highly complex to make because of their increasingly tiny "nodes," measured in nanometers, that make them faster and more power-efficient.

And even as Chinese researchers and chipmakers strive to catch up, the technology is evolving, with new materials transforming the future landscape of the electronics industry.

Larry Kudlow, Trump's economic adviser, is among those due to join the meetings in Beijing. He has acknowledged it would take time to persuade China to let U.S. companies compete in the Chinese market without being forced to surrender their technological know-how.

Still, Beijing is backing up its towering ambitions in the semiconductor sector with money and tax breaks. The government set up the National Integrated Circuit Industry Investment Fund in 2014, seeded with 140 billion yuan (\$22 billion) in capital to invest in chip companies. A second round of fundraising for as much as 200 billion yuan is underway, Chinese media report.

The state-controlled Tsinghua Unigroup project, associated with Tsinghua University—China's equivalent of MIT—emerged as a national champion after buying two Chinese chip design firms, Spreadtrum and RDA Microelectronics in 2013. It's building two massive memory chip factories, including a \$30 billion facility in Nanjing that will churn out 100,000 wafers a month and is expected to exert a "siphon effect," drawing microchip industry suppliers and experts to the area.

It's unclear how successful those efforts will be.

One of Beijing's strategies, acquiring overseas chipmaking-related firms, has faced resistance from foreign regulators. Washington has scuppered multiple China-linked bids for semiconductor-related firms—a trend that began about the same time that a White House advisory panel urged in January last year, before President Donald Trump took office, more protections for the industry because of China's industrial policies.

Market leaders like Samsung and Intel each command about 14 percent of the global memory chip market, according to Gartner research. Taiwan Semiconductor Manufacturing, South Korea's Hynix, Micron Technology and Qualcomm of the U.S. and Japan's Toshiba also are major chipmakers.

"Even though they've committed a lot of money to the investment fund, the reality has sunk in that it's harder than just throwing money at the problem. The Samsungs of the world, the TSMCs have a large head start," said Alexander Wolf, an economist at Aberdeen Standard Investments. "Certain products, you can't really reverse engineer."

While some companies like Huawei and ZTE are avidly pursuing advanced semiconductor technology, experts say overall Chinese research and development spending is a fraction of the multibillion-dollar budgets of the big players. That's one reason Beijing's success is anything but a given.

"These things are built from thousands of engineers of different disciplines pulling it together," said Christopher Thomas, a Beijing-based partner at consulting firm McKinsey, who estimates it will take a decade for China's efforts to result in any meaningful shift. "You've got to solve all the complexity to catch up. You can't just solve one thing."

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