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Taiwan, semiconductor manufacture and the US conflict with China

A rash of op-ed comments, reports and warnings in Washington over the past month have raised the danger of a catastrophic war between the United States and China over Taiwan in the not-too-distant future. All the increasingly bellicose anti-China propaganda—accusing Beijing of planning to invade Taiwan—ignores Washington’s provocative actions in deliberately stoking potentially the most explosive flashpoint in Asia.

The US is accelerating its confrontation with China, which began with the Obama administration’s “pivot to Asia” and was intensified on all fronts under Trump. Any suggestion that Biden, who played an active role as vice-president in Obama’s “pivot” against China, would ease tensions has been rapidly dispelled.



Taiwanese President Tsai Ing-wen, center, walks to her inauguration ceremony in Taipei, Taiwan, Wednesday, May 20, 2020 (Taiwan Presidential Office via AP)

Biden has elevated the Quadrilateral Security Dialogue or Quad—a quasi-military alliance involving the US, Japan, Australia and India—by holding the first ever leaders’ meeting on March 12. The Quad summit was followed by an extraordinary altercation at a top-level meeting between US and Chinese officials in Alaska, provoked by US Secretary of State Antony Blinken’s castigation of China across a range of concocted issues.

Taiwan, however, has rapidly emerged as the focus of war tensions, eclipsing the South China Sea and the Korean Peninsula. In testimony to the US Congress last month, the outgoing head of the Indo-Pacific Command Admiral Phil Davidson warned of a US war with China over Taiwan in the next six years. His replacement Admiral John Aquilino told his confirmation hearing that such a war was “much closer than most think.”

While Davidson and Aquilino warned of a Chinese invasion of Taiwan, it is the US that is upsetting the fragile balance in the Taiwan Strait established in 1979 when Washington ended diplomatic relations with Taiwan in favour of relations with Beijing, which it recognised under the “One China” policy as the legitimate government of all China, including Taiwan. The US is building ties with Taiwan that fly in the face of the “One China” policy—previous restrictions on contact between US and Taiwanese officials have been junked and moves are being made for closer military collaboration.

Under the 1979 Taiwan Relations Act, the US is committed to supplying Taiwan with supposedly defensive weaponry, and a major expansion of sales took place under Trump. The Act also contained an ambiguous commitment by the US to support Taiwan militarily in a conflict with China. Anti-China hawks are pressing for the US to end this “strategic ambiguity” in favour of “strategic clarity”—that is, a guarantee akin to a military alliance to go to war with China over Taiwan.

All this poses a direct threat to China. Taiwan is just 130 kilometres from the Chinese mainland at its narrowest point. Small, heavily fortified, Taiwanese-controlled islets lie just kilometres from major Chinese cities. Beijing has repeatedly warned that it would use military force to reunify Taiwan if the government in Taipei ever declared formal

independence from China—a step that could be encouraged by US guarantees of military and diplomatic support.

While the strategic and military importance of Taiwan in any conflict between the US and China is evident, not so obvious is the crucial role that the relatively small country of just 24 million people plays in the global economy through the manufacture of semiconductor chips. The mass production of computer chips is essential to everything from smart phones, laptops and vehicles to cutting-edge applications, such as artificial intelligence, supercomputers and quantum computing, that augur what some have termed the “fourth industrial revolution.”

One giant corporation—the Taiwan Semiconductor Manufacturing Company (TSMC)—accounts for about 55 percent of international chip production, but its dominance rises to 90 percent when it comes to the most advanced chips. US companies such as Apple and Qualcomm and their counterparts in Japan, Europe and other countries continue to design chips but have outsourced their production to TSMC fabrication facilities or “foundries.”

The huge costs of chip production have accelerated, resulting in companies contracting TSMC to manufacture their chips. TSMC is now building an enormous new “foundry” in southern Taiwan at an estimated cost of \$US20 billion to produce the next generation of 3 nanometre (nm) chips, which are predicted to be 70 percent faster in computing and more power-efficient than the current most advanced 5 nm chips. The smaller the components—a nanometre is one millionth of a millimetre—the more can be packed onto a chip.

TSMC’s stranglehold is considered virtually unassailable. A *Financial Times* (FT) article entitled “Geopolitical supremacy will increasingly depend on computer chips” published in February commented: “Most other semiconductor companies have dropped out of the race to manufacture 3nm chips due to the stratospheric costs. It will now be hard for any rival to catch up with TSMC because of its vast capital spending, its technological expertise, its network of suppliers and its support from the Taiwanese government. Only Samsung of South Korea is visible in its rear-view mirror.”

TSMC’s virtual monopoly of advanced chip production has obvious military implications. The FT article noted: “If military capability in previous centuries was built on breech-loading rifles, warships or atomic bombs, it may well depend in the 21st century on the

smartest use of advanced chips.” Such chips are essential for everything from the artificial intelligence built into the latest generation of warplanes to missile guidance systems and computer modelling of trajectories.

The Pentagon has long pressed for the establishment of comparable chip “foundries” in the US to ensure supplies of these vital components in the event of war. Similar military calculations are being made in other capitals as the US-led war drive against China intensifies the danger of conflict.

The Trump administration’s decision to cut off supplies of chips to the Chinese technology giant Huawei, which included pressure on TSMC to do the same, undoubtedly triggered shockwaves in Beijing. China imports all but 15 percent of its chips, especially of the most advanced chips. It spends more on imported semiconductors than oil. US economic warfare against Huawei will only spur Beijing to spend even more to build domestic capacity.

Restrictions have also been placed on one of China’s largest chip makers, the Semiconductor Manufacturing International Corp, and more recently, by the Biden administration, on three Chinese companies associated with the production of supercomputers as well as four branches of China’s National Supercomputing Centre. Ironically, the ban on Huawei played a significant role in the current acute global shortage of chips because Huawei spent billions stockpiling before it came into effect.

The strategic significance of chip manufacture was underscored yesterday when the Biden administration convened a virtual meeting of key companies over chip shortages and the need for domestic US chip production. Biden touted his \$2 trillion infrastructure plan, as well as congressional moves to provide \$50 billion in funding for chip production, as incentives to expand manufacture in the US.

TSMC had a seat at the virtual table. It is already establishing a \$12 billion chip foundry in Arizona and facilities in Japan, which is concerned about its own lack of domestic chip manufacture. However, the Arizona facility is being geared up to produce 5nm chips, which will already be dated when the new TSMC plant in southern Taiwan starts making 3nm chips in 2023.

Intel is planning to expand its chip production in the US. But the difficulties of attempting to catch up with TSMC are highlighted by the fact that Intel, currently the main US chip manufacturer, is also planning to outsource some of its chip production to TSMC for the first time.

Biden's infrastructure plans face opposition in the US Congress, threatening to dilute chip manufacture funding. Moreover, even if the \$50 billion in funding is passed, this may well fall far short of what is required. TSMC recently announced plans to spend more than \$100 billion to maintain its dominant position.

As cited in a *Politico* article on the White House meeting, James Lewis, director of the strategic technologies program at the Washington-based Center for Strategic and International Studies, commented: "I think people are still hoping we can stay ahead of China without spending any money, and it's just not going to work." If the US intends to compete with China and other countries on infrastructure and semiconductor research and production, Lewis continued, then "you need to spend money and Congress has not quite shifted out of a peacetime mode of thinking."

Lewis reflects the wartime thinking that now dominates military and strategic circles in Washington as it prepares for war with China, which is viewed as the chief threat to the global domination of US imperialism. Admiral Davidson in his congressional testimony last month emphasised the need for a massive expansion of military spending in the Indo-Pacific and in particular for the installation of ground-based intermediate range missiles. Supply chains of strategic items such as chips were the subject of discussion at the Quad meeting last month.

TSMC's role in chip manufacture is by no means the only factor that has rapidly brought Taiwan into sharp relief in US strategic planning, but it is certainly an important one. The US is determined to maintain a predominance over a critical choke point in the supply of semi-conductors for its military and economy. Its moves to strengthen ties with Taiwan will only further fuel tensions with China, heightening the danger of war between the two nuclear-armed powers.

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