

# US imposes crippling controls on export of advanced chips to China

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In a move aimed at crippling China's hi-tech sectors, the Biden administration announced last Friday sweeping measures effectively banning the export to Chinese corporations of advanced computer chips and the equipment needed in their manufacture.

While imposed on the basis of "national security," the export controls will impact the broad range of China's commercial sectors that involve artificial intelligence (AI), high performance computing or supercomputers.

The latest export bans underscore the determination of US imperialism to weaken and ultimately subordinate China, regarded in Washington as the chief threat to its global hegemony. China, currently the world's second largest economy and predicted to overtake the US by the end of the decade, is no longer simply the manufacturing hub for low-cost goods. It threatens American dominance in hi-tech areas where AI and high-end computing are necessary.

Paul Triolo, a technology expert at consultancy Albright Stonebridge, told the *Financial Times* that the US actions were a "major watershed" in US-China relations. "The US has essentially declared war on China's ability to advance the country's use of high-performance computing for economic and security gains," he said.

The latest controls extend the measures imposed by the Trump administration on the Chinese hi-tech corporation, Huawei, that effectively ended its position as the leading manufacturer of mobile phones and networking equipment. Huawei's founder reportedly told staff that the company's survival was at stake. Now the Biden administration is seeking to wreak devastation throughout hi-tech sectors of the Chinese economy.

The controls are based on a "foreign direct product

rule" that is very far-reaching in scope. It effectively bans any US or non-US company from supplying targeted Chinese entities with hardware or software whose supply chain contains any American technology. Some 30 Chinese corporations have been placed on a list of "unverified" companies, giving them 60 days to satisfy stringent US requirements. Failing that, they will be placed on the "entity list" that bars US companies from supplying them with technology without difficult-to-obtain US licences.

There has been an extraordinarily rapid change in chip manufacture, as measured by the size and thus the number of electronic components in the circuitry that can be etched onto a silicon wafer. The size, measured in nanometres (nm) or billionths of a metre, is approaching molecular dimensions. The manufacture of advanced chips requires highly sophisticated equipment. Overwhelmingly, the most advanced 3nm and 4nm chips are produced by the Taiwan Semiconductor Manufacturing Company (TSMC), Intel and Samsung.

By banning the export of the most advanced lithography equipment needed to etch chips, the US export controls seek not only to block access to the latest chips but to obstruct Chinese efforts to develop its own chip manufacturing capacity.

The bans extend restrictions put in place in July requiring top US toolmakers—KLA Corp, Lam Research Corp and Applied Materials Inc—to end exports of equipment capable of making 14nm or smaller chips to wholly Chinese-owned companies.

Jim Lewis, a technology analyst at the US-based Center for Strategic and International Studies (CSIS), likened the US controls to those put in place at the height of the Cold War. He told Reuters: "This will set the Chinese back years. China isn't going to give up on

chipmaking ... but this will really slow them [down].”

The new controls also ban “US persons”—both citizens and companies—from providing direct or indirect support to Chinese companies involved in advanced chip manufacturing. “That is a bigger bombshell than stopping us from buying equipment,” a human resources executive at a Chinese semiconductor plant told the *Financial Times*. “We do have [US passport holders] in our company, in some of the most important positions,” she said.

The bans are likely to impact on non-US corporations. Washington has been pressuring the Dutch-based chip equipment supplier ASML to stop selling deep ultraviolet (DUV) lithography machinery to China that can be used to make chips as advanced as 5nm. The US also has been pressing Japan to bar the export of similar equipment. The controls will affect foreign companies operating chip manufacturing plants inside China, such as SK Hynix, one of South Korea’s two main memory chip producers.

At the same time, the measures will impact heavily on American corporations, as the Chinese semiconductor market accounts for nearly a quarter of global demand. US equipment maker Applied Materials derived 33 percent of its sales from China last year and its peer Lam Research 31 percent. Intel is expected to be hard hit, because many of most advanced chips are used in Chinese supercomputers.

China responded angrily to the new bans. “Out of the need to maintain its sci-tech hegemony, the US abuses export control measures to maliciously block and suppress Chinese companies,” foreign ministry spokeswoman Mao Ning told the media. “It will not only damage the legitimate rights and interests of Chinese companies, but also affect American companies’ interests.”

An article in the *Asia Times* earlier this month suggested that Chinese companies were developing alternatives to work around already heavy US restrictions. It cited the case of one of China’s largest chipmakers, Semiconductor Manufacturing International Corporation, which it declared “recently shocked the US by announcing that it had produced 7nm chips” despite being denied access to the most advanced chipmaking equipment.

The very fact that the US Commerce Department has announced the latest extensive export controls in order

to block Chinese military development underscores the fact that the US is preparing for war. While seeking to undermine China’s technological advances, the US is engaged in shoring up its own supply chains in the event of conflict.

The technology bans are on top of the huge trade tariffs imposed on Chinese goods by the Trump administration that have been maintained by Biden.

The US measures designed to undermine the Chinese economy go hand in hand with a US military build-up throughout the region, along with military provocations in the South China Sea and Taiwan Strait close to the Chinese mainland.

Last century, the US provoked a war in the Pacific with Japan by imposing an oil embargo in the 1930s aimed at strangling the Japanese economy. Likewise, the latest US export controls on computer chips point to the extreme tensions between the US and China and the advanced character of US war preparations.



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