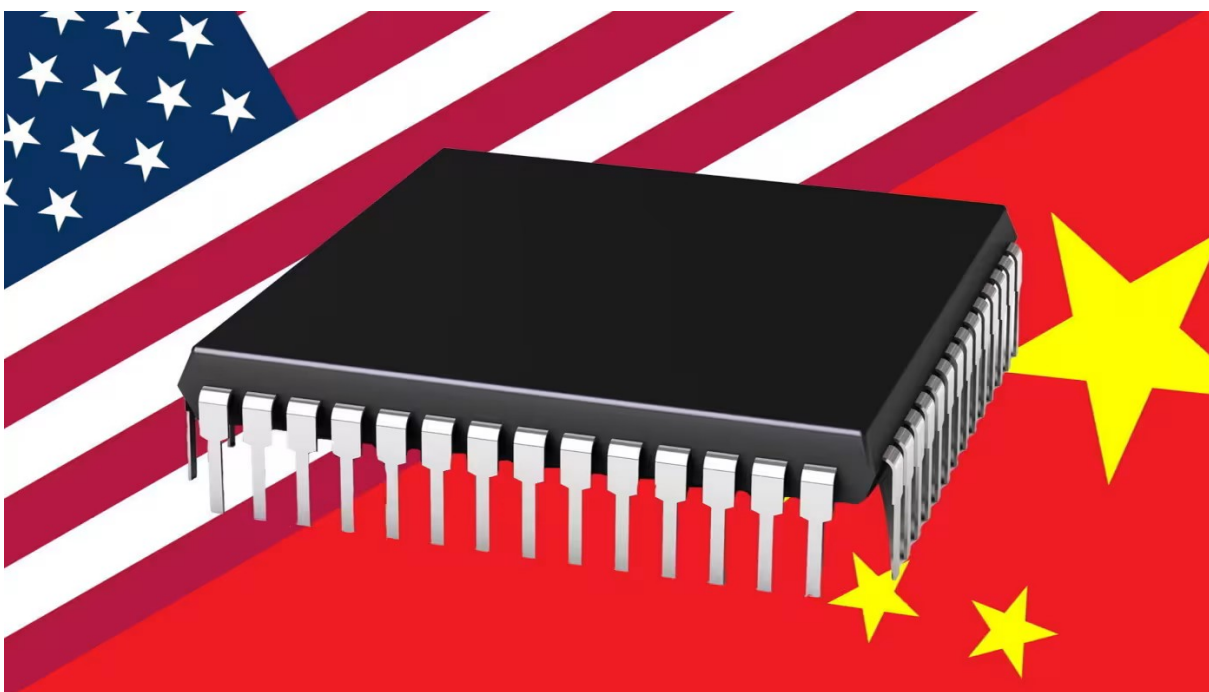


US-China trade dispute

China's shift to local chips gains momentum from latest US export controls

Industry associations urge companies to switch, saying US semiconductors are 'no longer safe or reliable'



China swiftly responded to Washington's new export controls on advanced chip technology this week, banning exports of key chipmaking materials to the US © FT montage/Dreamstime

Ryan McMorrow and **Eleanor Olcott** in Beijing 6 HOURS AGO

China has finally said aloud what was once only discussed behind closed doors: the country must rid itself of US chips.

Four government-backed industry associations, representing the bulk of China's semiconductor demand, issued co-ordinated statements this week urging member companies to rethink purchases of American silicon that three of them deemed as "no longer safe or reliable".

"Be cautious when purchasing US chips," the four associations said, urging their members to look for Chinese or other foreign suppliers instead.

The directives came amid the [latest tit-for-tat salvo](#) between Beijing and Washington over the foundational technology, an exchange that has laid bare their intensifying competition and added momentum to the development of increasingly separate international supply chains.

In an unusually swift response on Tuesday, Beijing banned the shipment of key minerals and metals to the US, just hours after American officials unveiled [new export controls](#) designed to "degrade" China's ability to make the most advanced chips.

The latest US controls include tougher restrictions on shipping [semiconductor](#) manufacturing tools to China and a ban on exports of advanced memory chips needed in artificial intelligence hardware.

In response, [China](#) prohibited the export to the US of gallium, germanium, antimony and superhard materials, and imposed stricter controls on graphite.

Its action signalled a new willingness on Beijing's part to confront directly US efforts to cut the country off from advanced technology. In talks with President Joe Biden last month, Chinese leader Xi Jinping linked Washington's tech controls to stymying China's right to development, calling it a red line for the first time.

“Beijing has grown increasingly frustrated with US technology controls and has signalled it is prepared to respond in ways that create economic pain for US companies and the US economy,” said Paul Triolo, a tech expert at Albright Stonebridge Group.

China's curbs on materials for making semiconductors, batteries and military hardware will cause headaches for the US defence department and American companies that have already been scrambling to find other suppliers and substitutes for critical materials in supply chains controlled by Beijing.

The country is the world's main supplier of gallium and germanium. The US Geological Survey in October estimated a complete export ban on both would lower US GDP by \$3.4bn.

Accelerated efforts to eliminate US chips could hurt a broad swath of American semiconductor groups. An executive at a European chip design company said they had already been receiving calls from nervous Chinese clients wanting to confirm that they were not American.

“This is the first time private companies have been directed to cut out US chips,” the executive said. “It's not a direct order but will have a chilling effect.”





Chinese President Xi Jinping, right, linked Washington's tech controls to stymying China's right to development in a meeting with Joe Biden last month © Leah Millis/AP

Analysts at Bernstein estimate Chinese groups have the power to influence sourcing decisions for the roughly 40 per cent of the global smartphone market they control and the 23 per cent of the computer market supplied by companies that include the world's largest PC maker Lenovo.

Customers in China, for example, contributed 27 per cent of sales last year for Intel, America's stumbling traditional chip champion. Artificial intelligence chip giant Nvidia drew 17 per cent of sales from the country. Arizona-based Onsemi estimates its chips are in half of China's electric vehicles. Mobile processor maker Qualcomm derived about half of its \$39bn in annual revenue from China.

"The risks of such concentration are exacerbated by [US-China] trade and national security tensions," Qualcomm warned investors.

But Wall Street has largely brushed off concerns that US chips could be designed out of Chinese devices. Lin Qingyuan, an expert on China's semiconductor self-reliance programme at Bernstein, said that in the near and medium term, investors did not need to worry. "If China was able to get rid of US chips, they would have already," he said.

While government directives have accelerated localisation efforts, companies will still prioritise performance, said Lin, noting that the latest rhetoric from industry associations was most likely to change purchasing behaviour in mature chips.

Nevertheless, China's localisation drive has been expanding, with government and state-owned groups being told to [buy computers without Intel and AMD processors](#).

Even foreign companies are increasingly switching to local semiconductors, with German car parts supplier Bosch highlighting its "localised chip solution" for a steering system at a supply chain expo in Beijing last month. "This is our local

product for the local market," said a sales manager.

China's State Grid proudly displayed electrical equipment powered by Chinese central processing units and microprocessors. "New products all use local semis," said an engineer.

Analysts said it was too soon to gauge the impact of the new US controls on China's chip industry. Ahead of the bans, there had been months of building up stockpiles of equipment and high-bandwidth memory (HBM) chips needed for AI processors.

Tilly Zhang, a semiconductor analyst at Gavekal, said no Chinese company had yet been able to achieve mass production of HBM chips, though memory group CXMT was trying.

"Companies have made meaningful progress in replacing American tools in the past few years thanks to previous export controls," said Bao Linghao, an analyst at Trivium. "Piecemeal controls will help China to build a more robust chip supply chain over the long term."

Lin at Bernstein agreed that the impact on China's semiconductor equipment makers could be limited. "They've been working to de-Americanise their supply chains for more than three years," he said.

Chinese equipment makers have already shifted to Japanese and European component suppliers with equivalent products that would not be affected by the export controls, he said. Lin did not expect the key US allies to unveil controls as tough as those from Washington, if they did at all.

"We expect [switching to other non-US suppliers] to continue until local suppliers can catch up," he said.

Additional reporting by Tina Hu in Beijing

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