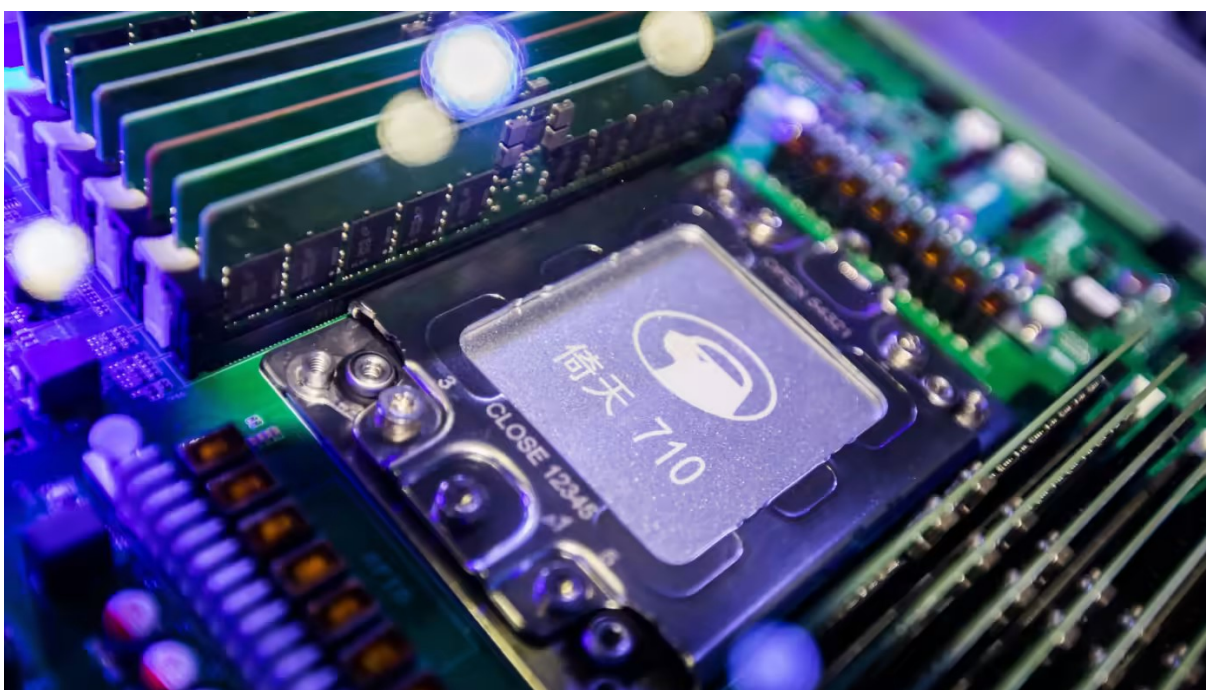


**Arm Ltd**

## Export controls hit China's access to Arm's leading-edge chip designs

Alibaba among groups unable to purchase top designs



The Arm-structure server processor Yitian 710, developed by Alibaba's in-house semiconductor unit, T-Head. Arm is seen as vulnerable to the administration of President Joe Biden's export controls that target Beijing © Feature China/Future Publishing/Getty Images

**Qianer Liu** in Hong Kong, **Anna Gross** in London and **Demetri Sevastopulo** in Washington 10 HOURS AGO

Alibaba, the Chinese tech giant, cannot buy some of the most advanced chip designs after Arm determined that the US and UK would not approve licences to export the technology to China.

The British company concluded that the US and UK would not approve the sale of its latest Neoverse V series because the performance was too high, according to people with knowledge of the sales process. The move impacts Alibaba's T-Head chip unit and other Chinese groups.

It is the first known time that [Arm](#), owned by Japanese tech investor SoftBank, has decided it could not export its most cutting-edge designs to China.

Neoverse V falls under Wassenaar — a multilateral arrangement involving 42 nations designed to stop dual-use technology from being diverted for military use — but Arm would need US and UK export licences to sell the technology.

The outcome comes two months after the US unveiled tough export controls to prevent China from obtaining advanced chips or securing the technology and equipment to make high-end [semiconductors](#) domestically.

Paul Triolo, a China and technology expert at the Albright Stonebridge Group consultancy, said the US commerce department's October 7 export controls also updated restrictions in ways that impacted the kind of technology Arm produces.

“Key companies in the semiconductor supply chain, including IP core players such as Arm . . . must determine whether the capabilities provided in their offerings meet or exceed the technical requirements in the new [October 7] commerce regulations,” said Triolo.

While Arm could apply for licences to sell the technology, the odds of success are very low given the US strategy to deny China technology that could have military applications. When the US introduced the new measures in October, it stressed that there would be a presumption to deny licences to export technology related to advanced chips to China.

Arm, which is headquartered in the UK but has significant operations in the US, is seen as vulnerable to the Biden administration's use of export controls that target Beijing. Like tech companies around the world, Chinese companies rely heavily on Arm's designs to build devices from smartphones to servers.

“We feel that the western world sees us as second-class people,” said one engineer from Alibaba's T-Head. “They won't sell good products to us even if we have money.”

The engineer said US sanctions were creating a two-tier system, and pointed out that Neoverse V, which was released last year, was already being used by Amazon Web Services in the US for its state of the art cloud computing chip.

Arm's intellectual property underpins the majority of chips around the world and is used by most companies developing leading-edge technologies.

Ratcheting tensions between China and the US have already compelled some Chinese chip companies to look at using an increasingly sophisticated [open-source alternative to Arm's designs called Risc-V](#).

Arm sells design architecture for processors — the electronic chips located in a computer that complete logical functions — and for the “cores”, the units within the processor that receive and process information.

Over the past year, Arm has released several new core designs, including Neoverse N2 and Neoverse V1 and V2, the latter of which are the highest-performance cores to date, with designs that are characterised as having originated in the US.

Chinese companies have been blocked from purchasing Neoverse V2 and its previous generation, V1, because of the US and UK export controls that are connected to technologies listed under Wassenaar, according to two people briefed on the reasoning behind the move.

The multilateral export control agreement was formed in 1996 by more than 40 nations, including the UK, US and EU member states to limit the sale of arms and products that could have a dual military purpose.

Arm preemptively determined it could not sell the IP to China because it is “US origin” technology that falls under the remit of Wassenaar and would require an export licence from Washington.

Arm said that as a global company it was “committed to adhering to all applicable export laws and regulations in the jurisdictions in which it operates”.

The UK government said it did not comment on individual licence applications but noted that it was “committed to supporting UK businesses and academia to engage with China in a way that reflects the UK’s values and takes account of national security concerns”.

The US did not respond to a request for comment. Alibaba declined to comment.

The US is trying to [enlist important European and Asian allies](#) in the chip sector, most notably the Netherlands and Japan, to adopt tough export controls on chip equipment. The US needs the help from its allies to complement severe controls that the Biden administration in October imposed on American semiconductor toolmaking companies.

An executive from another chip design house in Shenzhen said that after the collapse of SoftBank’s \$66bn sale of Arm to Nvidia earlier this year, many Chinese chip engineers regained confidence in using Arm’s designs without fear they would later be cut out of the supply chain.

But he said the company realised “how naive” it had been when it was told it could not buy Neoverse V1 for high-end chips it was developing for cloud computing. The executive added it became clear that the decision “wasn’t about money” but due to export controls.

Switching to N2 means the company “will take longer to achieve our goals”, he added, because “V1’s overall performance will kill N2 on all fronts”.

A person close to Arm said the company was working with Alibaba and other Chinese partners to identify solutions that help them meet their performance requirements while being compliant with the latest export controls.

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