

Technology

# Supercomputing is latest front in U.S.-China high-tech battle

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## The U.S. has barred companies from dealing with five more Chinese entities

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China's burgeoning supercomputer industry became the latest target of U.S. trade restrictions as officials banned shipments to four Chinese technology companies and one research institute on the grounds that they threaten American national security.

This latest move in a broadening confrontation over advanced technology between the world's leading economies appeared in a notice to the Federal Register dated Tuesday, which became public Friday. The move comes after last month's similar move against Chinese telecommunications manufacturer [Huawei](#) Technologies, which U.S. officials placed on its "Entity List" over allegations it violated sanctions against Iran, among other national security issues.

"The timing here is important because China is really just on the cusp of moving away from U.S. dependence to a certain degree of independence in high-performance computers," said Bob Sorensen, vice president of research and technology at Minneapolis-based Hyperion Research.

President Trump and Chinese President Xi Jinping are expected to meet next week in Japan during the Group of 20 summit.

The latest move singles out an entity, Wuxi Jiangnan Institute of Computing Technology, that is involved in supercomputing, an area in which China has made significant strides in recent

years. The institute is owned by China's People's Liberation Army, according to the notice in the Federal Register.

Also added to the list was the Chinese company Sugon, which calls itself [the largest manufacturer of supercomputers](#) in Asia.

Sugon, for instance, is helping the Chinese military do nuclear weapons simulation testing and hypersonic glide vehicle testing, said James Mulvenon, a China expert at SOS International, a Northern Virginia defense contractor. The glide vehicle can deliver nuclear-tipped weapons at speeds impossible to stop with missile defenses, he said.

And Jiangnan Institute of Computing Technology is the cover name for the former General Staff Department No. 56 Institute, the Chinese military's primary supercomputing institute, he said. The institute was renamed in a reorganization and thought to be placed under the Strategic Support Force, he said.

The other companies added to the list are Chengdu Haiguang Integrated Circuit, Chengdu Haiguang Microelectronics Technology, and Higon. Each of the companies does businesses under a variety of other names.

The notice posted to the Federal Register said the research institute and the four companies "have been determined by the U.S. government to be acting contrary to the national security or foreign policy interests of the United States."

China's efforts to develop its own supercomputing capability has been an area of particular concern for the Pentagon, which fears that the Chinese military will use it to test and develop nuclear weapons and a wide range of defense applications, such as fighter jets, submarines and missiles. Although China has developed some of its own high-performance processing chips, its supercomputer programs are still somewhat reliant on American chips.

None of the five entities are as prominent as Huawei, which is a massive, global leader in key telecommunications technologies. But the blacklisting “will absolutely hobble an important technology initiative –supercomputers,” Mulvenon said. “It will highlight their dependence on foreign suppliers.”

But Sorensen disagreed, saying he believes that while the move will set China back, “it will not halt or deter them in the long term.”

The move also is likely to impact U.S. chip manufacturers such as Intel and Nvidia, and experts worry the U.S. action could add even more motivation for the Chinese to bolster its own technology industry, which the nation has been seeking for several years to make independent of foreign sources of components.

“In the short term, we are hurting the U.S. companies, and in the long-term we are helping the Chinese advance more rapidly,” said Tarek El-Ghazawi, a computer engineering professor at George Washington University who specializes in supercomputers. “I see this as a lose-lose for us.”

China and the United States have over the past decade engaged in a fierce rivalry for the top spot in supercomputer performance. Some of the Chinese entities targeted by the U.S. action this week are allegedly developing “exascale” computers that are roughly 8 to 10 times faster than the best currently available, capable of performing a quintillion calculations per second. The U.S. may have an exascale computer sometime in the next year or two, said El-Ghazawi.

Robert K. Knake, a White House cybersecurity policy expert during the Obama administration, said it's not clear whether the motivation for this week's U.S. action comes from national security concerns or the ongoing trade war with China.

“If Trump gets the trade deal he wants from China, does he lift the trade restrictions?” said Knake, now a senior fellow at the Council on Foreign Relations. “I think that’s a very open question.”

U.S. officials for years have worried about the rapid advances in China’s high-technology industry, though some of these strides have relied on American components or designs. One of the sanctioned companies, Hygon, entered into a joint venture several years ago with the American semiconductor firm AMD or Advanced Micro Devices to build x86-based server chips. The chips can be used to build supercomputers that aid the design and testing of nuclear and conventional weapons, among other things.


The listing of the Chinese companies comes as China and the United States are locked in a trade war that has seen both countries impose tariffs on billions of dollars worth of imports from the other.

“It’s not new that the U.S. government is concerned about China’s efforts in this area,” said Richard C. Sofield, a former Justice Department lawyer who once oversaw national security review of trade in American technology and now is a partner at Wiley Rein. “This is just another step.”

China’s embassy in Washington did not respond to requests for comment on Friday.


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