

U.S. Targets Chinese Optical Transceivers at Its Own Risk



By LIANG Yilian & HU Dingkun

On August 4, U.S. media reported that the Federal Communications Commission (FCC) is drafting measures to ban imports of new Chinese optical transceivers, with some officials aiming to publish and implement the policy later this year.

Optical transceivers are critical components of data centers, enabling high-speed data transmission over fiber-optic cables. According to France-based market research firm Yole Group, driven by investment in AI data center infrastructure, the global optical transceiver market is projected to reach 112 billion USD within five years, up from 23 billion USD in 2025.

Reuters reported people familiar with the matter as saying that the U.S. government is concerned that Chinese optical transceivers could potentially be used to "steal data," "install malware" or "disrupt service" at U.S. data centers. These claims, once again, are driven by the familiar rhetoric of "national security," while offering no evidence that Chinese optical transceivers pose such threats.

Viewed in the broader context of Washington's recent actions against China's AI sector, the proposed restrictions on Chinese optical transceivers fit neatly into an increasingly comprehensive effort to constrain China's position across the AI supply chain.

In this ecosystem, chips sit upstream as the "engines" that provide computing power; data centers are the



Robotic arms strap battery packs in a factory in Nantong, Jiangsu province, July 24. (PHOTO: XINHUA)

midstream "factories" where those engines are deployed; large AI models are the downstream "products"; and applications constitute the end-use scenarios. Electricity provides the energy that powers the entire chain.

The U.S. has already targeted China upstream by restricting access to advanced chips. Downstream, it has amplified concerns over issues such as the alleged "distillation" of Chinese AI models, laying the groundwork for further restrictions. At the application end, Washington has moved to restrict Chinese-made humanoid robots, quadruped robots and drones. It has also targeted Chinese grid-connected inverters, placing them on the FCC's "covered list."

Taken together, these moves suggest that Washington is seeking to exert pressure across the entire AI value chain and reduce its dependence on Chinese technology. Regardless of whether this

strategy can achieve its intended effect, banning new Chinese optical transceivers would amount to another move targeting the "midstream" of the AI ecosystem, making Washington's restrictions appear increasingly "comprehensive."

However, this could prove to be a severe miscalculation. According to global technology market intelligence firm Counterpoint Research, a comprehensive ban on new Chinese optical module imports would have an immediate and severe impact on U.S. data center operators, including Amazon, Microsoft, Meta, and Google. Currently, four Chinese manufacturers — including Zhongji InnoLight and Eoptolink — collectively account for roughly two-thirds of global optical module supply.

By contrast, top American competitors Coherent Corp. and Lumentum Holdings hold transceiver revenue shares of only about 17 percent and 6

percent respectively. U.S. companies are simply incapable of replacing Chinese suppliers or providing sufficient optical module volume within a 12- to 24-month horizon.

Counterpoint Research further warned that "a missing batch of optical transceivers renders billion-dollar GPU allocations idle" and that "constraining transceiver imports risks delaying the commercial turn-up of next-generation 800G/1.6T clusters by multiple quarters."

These reports have sparked widespread discussion on overseas social media, with many industry insiders viewing the proposed ban as unwise. Jukan, an analyst at U.S. semiconductor-focused investment research firm Citirini Research, said: "The U.S. restriction on imports Chinese optical transceivers is nothing short of self-inflicted damage — U.S. data centers will literally grind to a halt."

At present, U.S. data center construction is already facing multiple headwinds, including power supply-demand imbalances, insufficient production capacity for large transformers, inconsistent regulatory policies across states, and public opposition driven by rising electricity costs. These factors have already resulted in severe construction delays. In May, JPMorgan reported that 60 percent of the data center capacity the U.S. plans to complete by 2027 has not yet broken ground.

It is evident that banning new Chinese optical modules will do little to contain China, but it will inevitably exacerbate the existing struggles in U.S. data center construction. In addition, it will impose more obstacles and burdens on the development of U.S. AI technology and industry.

Voice of the World

China's Open AI Models Reshape Global AI Landscape

By LIANG Yilian

The recent release of high-performance Chinese AI models — including DeepSeek, GLM-5.5, and Kimi K3 — has drawn global attention. With affordable pricing and rapidly improving capabilities, these systems are quickly gaining adoption worldwide.

While China's investment in AI lags far behind that of the U.S., its AI models certainly do not, according to *The Economist*. Newer releases suggest DeepSeek was not a one-shot event but part of a pattern of Chinese labs catching up quickly, according to the Center for Strategic and International Studies.

The Economist highlighted that American AI spending appears excessive compared to China's more cost-conscious approach. In 2026, Chinese tech giants are expected to invest less than one-tenth of what U.S. firms spend on data centers, yet their models are nearly as capable. China's Moonshot AI's Kimi K3, for instance, reportedly achieves 95 percent of Anthropic's Fable 5 performance at 70 percent lower operating costs.

This cost advantage reflects differences in development strategies, infrastructure choices, and efforts to optimize model performance with fewer resources. On August 3, Alibaba added to the trend with a new model that, by certain metrics, reportedly ranks among the global leaders.

As Chinese open-source models are increasingly almost as good as the closed systems made by leading U.S. companies, Raffi Krikorian, the chief technology officer at Mozilla told AP News, "The open frontier is becoming increasingly Chinese-built."

Meanwhile, as Washington considers possible restrictions on Chinese AI models, a group of major U.S. tech firms — including Microsoft, Meta, and Nvidia — recently signed an open letter advocating for "open" AI models, *The Washington Post* reported.

Business magazine *Fortune* captured the shifting dynamics with the headline "China's Moonshot, Z.A.I., and DeepSeek are challenging U.S. AI labs — and beating them on cost." The article noted that "Kimi K3 blew up the timeline: Chinese AI is now cheap enough and good enough." Paul Triolo, a partner at DGA-Albright Stonebridge Group, told *Fortune*: "The AI ecosystem in China is probably much better than people thought." As a result, AI users globally are adapting to a new reality in which Chinese AI models are competitive with U.S. models on capability and far superior on price, according to *Fortune*.

Most Chinese AI models are open-source — meaning anyone can examine and build on them — at a time when frontier models from U.S. companies like Anthropic and OpenAI remain closed-source, according to *The Washington Post*. "Chinese model vendors are expected to leverage open-source software to promote their global usage and adoption," said Lian Jye Su of technology research firm Omdia.

This openness has also benefited U.S. companies. TechCrunch reported that American open-weight AI firm Arcee has gained advantages from Chinese models. "We have tremendous respect for the people building those models, the individual researchers," said Lucas Atkins, chief technology officer of Arcee.

Young Scholars from China Shines on the World Stage

Opinion

By YAO Yian

Last month, Wang Hong and Deng Yu became the first Chinese mathematicians to win the Fields Medal, and their stories have inspired people across China. During a press conference of the Ministry of Foreign Affairs, a spokesperson responded to a related question, saying: "This is not only the result of individual hard work, but also a vivid reflection of the vibrant spirit of today's Chinese youth, embodying the confidence and courage to forge ahead and give their all."

China's youth-driven innovation has already shown many results, spanning basic science, hard-tech entrepreneurship and global scientific collaboration.

On the day that Wang Hong and Deng Yu received their awards,

Wang Xingxing, a young entrepreneur in China's robotics field, appeared on the cover of *Time* magazine alongside his manned exoskeleton.

Yang Zhilin's Moonshot AI, which created Kimi K3, took the world by storm.

Professor Shing-Tung Yau, a Fields Medalist, echoed this sentiment, remarking that China has become a fertile ground for basic research.

Undoubtedly, China's high-quality basic and undergraduate education has laid a solid foundation for academic journeys, serving as a compelling testament to the world-class system for cultivating top-tier research talent.

In the past, the "Qian Xuesen Question" — which queried why China's schools failed to produce outstanding scientific and tech talent — provoked deep national reflection. Today, the integrated development of education, science and technology, and talent is providing the

solution, accelerating synergy between independent technological innovation and homegrown talent cultivation.

Du Mengran, a 39-year-old ocean researcher at the Institute of Deep-sea Science and Engineering, Chinese Academy of Sciences, has devoted 12 years to her field. *Nature* named her a "Deep Diver" and one of the 10 people who shaped science in 2025, alongside Liang Wenfeng, the founder of the DeepSeek AI model. In June 2025, the UN endorsed the Global Trench Exploration and Diving program proposed by her institute, in collaboration with partners from more than 10 countries. Du is the Chinese chief scientist of the expedition.

These achievements are largely attributed to China's concerted efforts to enhance its independent innovation capabilities, tackle cutting-edge fundamental scientific questions, and lay a solid foundation for basic research. This is

the way to break free from the path of dependence and secure first-mover advantage in technological competition.

Scientific progress thrives on open cooperation and inclusive exchange. In this era of "big science" marked by accelerating transformation, it is precisely the deepening scientific exchanges and collaborations between China and the rest of the world that provide young scientists with richer opportunities, cutting-edge perspectives, and a broader stage.

Today, China has become a vibrant hub for strengthening basic research and accelerating scientific and technological innovation. With a growing number of outstanding overseas students returning to pursue their careers and an increasing influx of foreign scientists arriving for exchanges and collaboration, it is rapidly transforming from a global participant and contributor to science and technology into a pioneer and leader.



Visitors experience the multilingual AI transparent screen at the iFLYTEK AI Experience Center in Hefei, Anhui province, August 6. (PHOTO: XINHUA)

Hi-Tech

Prefab Homes Built Like LEGO

By GONG Qian

Chinese modular buildings have gained soaring popularity in overseas markets with fast-growing export volumes.

Data from the General Administration of Customs of China shows that between 2015 and 2025, China's export value for prefabricated buildings rose from 1.47 billion USD to approximately 4.34 billion USD. In the first quarter of 2026, modular building exports grew 45 percent.

Modular building is an innovative building method where the structure is broken down into individual modules. These are manufactured in a factory, and then transported to the construction site for assembly. Simply put, components such as ceilings, floors, and utility pipelines are fully prefabricated on an assembly line and then assembled on-site like giant LEGO blocks.

This approach has revolutionized the building process by allowing factory production and on-site work to proceed simultaneously. With over 70 percent of

the work completed in the factory, construction timelines can be reduced by more than 60 percent. Furthermore, this method effectively alleviates traffic pressure at construction sites, minimizes land occupation, and reduces environmental pollution.

Moreover, modular construction reduces construction waste by over 75 percent, material loss by more than 25 percent, on-site electricity consumption by over 60 percent, and water usage by over 66 percent.

Factory assembly line ensures millimeter-level precision control, enhancing the building's waterproofing, sound insulation, and seismic performance. The modules can be disassembled, stacked, and flexibly expanded, with a recycling and reuse rate exceeding 90 percent.

The export boom of prefabricated homes reflects the accelerated global expansion of China's new quality productive forces in intelligent construction. The vision "welcome to your home made in China" is becoming a reality across an increasing number of countries.

New Life for Exhaust Steam

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This severely tests the exhaust steam ejector's ability to adapt. Regardless of changes in load or operating conditions, it must precisely regulate steam flow while maintaining stable entrainment. The design and geometry of its regulating cone are critical to achieving this capability.

Initially, the team adopted the conventional straight-cone design that had been used across the industry for years, Ma Suxia, leader of the research team and a professor at TYUT, said. But it was a crude way of regulation — like an old-fashioned faucet. Open it too far and it overdrives the ejector; close it too much and it provides insufficient entrainment.

When the thermal power plant experiences an extreme cold snap or

during unit startup or shutdown, the equipment is highly susceptible to flow instability and ejector failure.

The team decided to rethink the regulating cone. After dozens of simulation iterations, multiple rounds of prototype redesigns, and hundreds of comparative tests under different operating conditions, they finalized a new streamlined curved regulating cone.

Compared with the conventional straight-cone design, the new cone offers a smoother flow transition and has a more efficient flow-passage geometry. With only a slight axial movement, it can precisely regulate the motive steam flow rate within milliseconds, enabling stable operation under varying loads, extreme weather and other demanding operating conditions.

Sealing for safety

As the only movable core component of the equipment, the adjustable cone has many weak points. Due to frequent axial movement and drastic changes in operating conditions, steam leaks are highly likely to occur at the clearances between moving and stationary components. This could lead to energy waste and equipment damage, or even accidents that would impact the electricity and heat usage in the entire region.

In the laboratory, experiments can be done by simply sealing the weak points, but the weaknesses will expose themselves easily when large engineering equipment is put into operation in a thermal power plant, Ma said.

To guarantee electricity and heat supply in cities, combined heat and power units have to operate 24/7 all year round with very little maintenance. Thus, the sealing system cannot have even the slightest design oversight or

manufacturing defect.

To solve this problem, the team learned from factories that have practical production experience and explored sealing materials and structures.

A solution was finalized. A special supporting structure would be added to the adjustable cone to prevent it from deforming or breaking under high pressure. Graphene is used to design a multiple sealing structure that fits perfectly while ensuring smooth, jam-free adjustment.

In extreme-condition tests evaluating the sealing structure's stability and durability, the ejector completed the entire test without steam leakage, component jamming or noticeable deformation. The regulating cone moved smoothly throughout its full travel, maintaining stable sealing performance.

If the technology is widely adopted across China's thermal power sector, it could reduce carbon emissions by more than 100 million tonnes.