[China dominates list of world's top supercomputers again](#)

Once again, China dominated a new list of the world's fastest supercomputers, not only taking the top two seats, but also pulling ahead of the United States in the sheer number of systems being used.

Photo taken on June 20, 2016 shows Sunway TaihuLight, a new Chinese supercomputer, in Wuxi, east China's Jiangsu Province. [Photo/Xinhua]

CHINA'S DOMINANCE

According to a biannual ranking of the world's 500 fastest supercomputers, called the Top500 published Monday, China's Sunway TaihuLight maintains the lead as the No. 1 system for the fourth time, with a performance of 93.01 petaflops.

China's Tianhe-2, or Milky Way-2, is still the No. 2 system at 33.86 petaflops. Intel chip-based Tianhe-2 had topped the list for three years until it was displaced in November 2015 by TaihuLight, which was built by entirely using processors designed and made in China.

The No. 3 is Switzerland's Piz Daint, which is also the most powerful supercomputer in Europe. A new system in Japan, called Gyoukou, is the No. 4, pushing Titan, the top U.S system, to the No. 5.

"For the second time in a row there is no system from the U.S. under the TOP3," Top500 said in a statement.

And that's not all. The 50th edition of Top500 ranking also shows that China has overtaken the United States in the total number of ranked systems by a

margin of 202 to 144. Just six months ago, the United States. led with 169 systems, and China with 159.

"It is the largest number of supercomputers China has ever claimed on the TOP500 ranking, with the U.S. presence shrinking to its lowest level since the list's inception 25 years ago," Top500 said.

"China now clearly shows a substantially larger number of installations than the United States."

China has also overtaken the United States in aggregate performance as well. The Asian country now claims 35.3 percent of the TOP500 flops, with the United States at second place with 29.8 percent.

AMERICAN STRENGTH

When it comes to companies making these systems, the U.S.-based Hewlett-Packard Enterprise has the lead in the number of installed supercomputers at 123, which represents nearly a quarter of all TOP500 systems.

China's Lenovo followed HPE with 81 systems, down from 88 systems on the June list, and another Chinese company called Inspur jumped to the third position with 56 systems, up from the sixth place and 20 systems only six month ago.

Liu Jun, Inspur's high performance computing (HPC) general manager, told Xinhua said China and its research institutes and companies have invested a lot in supporting HPC research, development and innovation.

"So China has improved greatly in its HPC competitiveness and performance," he said. "In addition, the United States and Europe may have a more prolonged update cycle for their supercomputers."

Liu cautioned that China's overtaking of the United States in the total number of ranked systems didn't make too much sense.

"We should be soberly aware that core technologies of the mainstream products on the HPC market, such as CPU and GPU, are now still being dominated and controlled by U.S. companies," Liu said.

"China still lags far behind when compared with the U.S. and Europe and requires continuous efforts for further development," Liu said.

Experts also predicted that Summit, a system currently being developed by the U.S. Department of Energy, could dethrone China's TaihuLight next year, when it comes to run with an expected performance of 200 petaflops.

OTHER HIGHLIGHTS

Other systems in the top 10 included Sequoia, Trinity and Cori of the United States, as well as Oakforest-PACS and K computer of Japan.

Top500 said this is the first time that each of the top 10 supercomputers delivered more than 10 petaflops.

There are also 181 systems with performance higher than a petaflop — up from 138 six months ago, according to the list.

Taking a broader look, the combined performance of all 500 systems has grown to 845 petaflops, compared to 749 petaflops on the June list and 672 petaflops one year ago.

"Even though aggregate performance grew by nearly 100 petaflops, the relative increase is well below the list's long-term historical trend," the list said.

And the entry point in the latest rankings moved up to 548 teraflops, compared to 432 teraflops in June.

"The 548-teraflop system was in position 370 in the previous TOP500 list," it said. "The turnover is in line with what has been observed over the last four years, but is much lower than previous levels."

The Top500 list is considered one of the most authoritative rankings of the world's supercomputers. It is compiled on the basis of the machines' performance on the Linpack benchmark by experts from the United States and Germany.

World's first 2,000-ton electric boat launched

The world's first 2,000-metric-ton electric boat was launched Sunday in the southern city of Guangzhou.

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With a battery capacity of 2,400 kilowatt-hours, the self-unloading ship built by Guangzhou Shipyard International has zero exhaust emissions.

The ship is powered by lithium battery and super capacitor, and can last up to 80 kilometers after a two-hour recharge.

The steel cargo ship will be used to carry coal and it will navigate on the Pearl River and other bodies of water.

Paddler plans to kayak to Arctic Ocean

The Irtysh River flows from Hou Zhili's hometown and leads to the Arctic Ocean — a journey Huo plans to make alone in a kayak.

The Irtysh River in the northen Xinjiang Uygur autonomous region is the only river in China that leads to the Arctic Ocean.[Photo by Hu Huhu/Xinhua]

From where he lives in Fuyun county, Xinjiang Uygur autonomous region, the 41-year-old has completed what many see as epic feats — kayaking unpowered for 2,020 kilometers on the China and Kazakhstan sections of the Irtysh in 2014 and 2016.

The paddler is preparing for the final and most challenging stage of the 2,200-km Russia section, plus the last 1,160-km of the Ob River, which the Irtysh flows into before its waters reach the northern sea.

From its source in the Altay Mountains in Fuyun, the 4,248-km Irtysh River flows northwest through Kazakhstan before merging with the Ob River in Russia. It is the only river in China that leads to the Arctic Ocean.

Huo's love for kayaking began when he was a teenager. In the 1980s, several white-water adventurers on China's two largest rivers, the Yangtze and the Yellow River, had become famous and started a craze among bold Chinese who took to rafting on streams across the country.

Some youngsters from Hou's hometown even drifted for hundreds of kilometers along the Irtysh on rafts made of old tires.

In 2012, he decided to close his graphic design company and turned his hobby into a full-time occupation.

After arduous training, on Aug 28, 2014, Hou set out alone in his yellow and orange boat from Koktokay, a town near the source of the Irtysh.

He paddled for 50 km a day, and took 23 days to arrive at Kaba county, where the 520-km China section of the river ends.

The river begins to freeze in November and does not thaw until April, so Huo planned to complete the Kazakhstan section the following year. When the time came, however, he was refused a visa.

His chance finally arrived as tourism cooperation between China and Kazakhstan improved with the Belt and Road Initiative.

Kazakhstan relaxed its visa procedures for Chinese tourists last year.

In August 2016, with the help of travel agencies from both sides of the border, Hou set out from Jeminay, a Chinese county bordering Kazakhstan. It took him 33 days to paddle the 1,500-km section.

The journey was longer and tougher than he expected.

The river width and current varied constantly. He fought hard to meet his target of 50 km a day. Camping on the riverbank when dusk fell was risky.

"I was lucky to return from the dangerous journey unharmed," he said.

Along the way, Hou was deeply moved by the friendly Kazakh people who gave him fresh produce and invited him to stay at their homes.

It has not been cheap. The challenge has cost a good portion of his savings.

To finish the task, he has to kayak further than the total of his two previous trips.

He also has to cross the vast and frigid Siberian landscape. The adventure in Russia will be much more demanding — physically and financially.

Hou went to Russia in September to assess his travel route and to coordinate with local tourism authorities.

He said the preparation is going well. The prospect of navigating a watercourse that is frozen solid for much of the year has not dampened his ambition.

Hou plans to start from the Russian city of Omsk next summer and to paddle all the way to Labytnangi, the last town on the Irtysh. From there he will approach the great northern ocean.

"I want to be a true hero in the eyes of my daughter," said Huo, who has a 12-year-old girl. Hou's wife, who at first did not understand his drive to complete such a dangerous journey now accepts his ambition and backs him.

"That support inspires me to hold on to my dream, no matter how many challenges I encounter," he said.

[Online studies in China booming](#)

China's online education market is forecast to reach 194 billion yuan ($29 billion) this year, with the number of active users set to surpass 110 million, according to a report released on Sunday.

More than 90 million people accessed online courses via Chinese platforms last year, and the scale is expected to rise at an annual rate of at least 20 percent, the report suggests.

The survey was conducted by Xuetangx — a website run by Tsinghua University that provides online courses (mostly free) — and iResearch, a consulting firm focusing on internet data. Participants were aged 18 to 30, with 58 percent male and more than 70 percent undergraduates.

The report was based on a survey of 1,440 students who have used Xuetangx services or those of similar platforms during the past year.

It said half the people who access online courses are in large metropolitan areas — mostly Beijing, Shanghai and Guangdong province — although it added that the market is expected to expand to smaller cities.

Courses in languages and vocational skills, such as IT training, management and businesses, are in the greatest demand. The most common reasons for choosing online courses are flexibility, diversity of subject matter and access to well-known teachers, according to the report.

Li Chao, CEO of Xuetangx, said despite the rapid development of online education, traditional education will not be replaced completely because both online and offline learning have their advantages.

"Traditional education triumphs in its face-to-face communication, which makes it easy for teachers to track a student's learning outcome, whereas online education triumphs in its flexibility and convenience," Li said.

He noted a growing acceptance of online education among both users and colleges.

"When online open courses first became available on the internet, no students received credit for attending in their bedrooms. But now some colleges have incorporated online courses into their teaching," Li said.

"Now we are turning individual credit online courses into a degree program."

[Standards raised for fire probes nationwide](#)

Two sources of fire risks — skyscraper-dense cities, and villages with limited access to firefighting equipment — are priorities in China's fire-control campaign, according to a senior official, and more rigorous investigations will be undertaken by local governments when fires result in injuries or fatalities.

Yu Jianhua, director of the firefighting department of the Ministry of Public Security, said at a news briefing on Friday that more investigations with stricter standards will be conducted in cases of fires that have casualties.

The State Council will organize investigations into fires that cause more than 30 deaths, Yu said, while provincial-level governments must investigate one that kills more than 10 people but less than 30. City governments are responsible for investigating when there are four to nine deaths, and county governments must handle cases with up to three fatalities.

The rule came with a new work plan for fire control that was released by the State Council on Thursday. It aims to prevent large-scale fires nationwide. The notice pointed to the heads of local governments as first in the line of responsibility for fire fatalities.

Yu said the plan clarifies the responsibilities of each level of government. Those in charge of fire control will face penalties if they fail to fulfill their duty, the work plan said.

The biggest risk of fire arises in well-developed cities and in rural areas with less equipment, he said.

China is conducting fire control checks of skyscrapers nationwide, bringing more than 610,000 tall buildings under scrutiny, Yu said.

According to the ministry, China ranks first in the world in number of tall buildings, and more than 6,000 of them are higher than 100 meters. The tallest building, in Shanghai, rises more than 600 meters.

"Last year, I visited London, which has about 500 tall buildings. By comparison, Beijing alone has more than 25,000. The large number has led to fire control risks," he said.

Meanwhile, 24.7 million square meters of underground spaces in more than 20 provinces and municipalities also face risks, Yu said, as some of these spaces have been altered into hostels or apartments for rent. They're dangerous, he said.

The country also has more than 10,000 large shopping complexes of more than 10,000 square meters, more than 100,000 shantytowns in downtown areas of cities and more than 100,000 chemical companies, he added.