

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.