TOP500 (Nov 2026): China's 'LineShine' is the fastest

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News

The 68th TOP500 list of the world's fastest supercomputers (November 2026) was released at the SC26 conference in Chicago, USA. 'LineShine' at the National Supercomputing Centre in Shenzhen, China, kept the No. 1 spot with about 2.2 exaflops on the HPL benchmark. It first took the top spot in June 2026 (ISC26, Hamburg) – the first Chinese No. 1 since 2017. The US system El Capitan (1.8 exaflops) is second, followed by Frontier and Aurora (USA) and JUPITER (Germany). ITPro reports that LineShine is CPU-only – about 14 million Arm-based cores and no GPUs. The top 10 did not change, and only 27 new systems entered – the lowest turnover in the list's history.

Key facts for the exam

Point	Details
List	68th TOP500, November 2026
Released at	SC26, Chicago (USA)
No. 1	LineShine – Shenzhen, China
Speed (HPL)	about 2.2 exaflops (2.198)
First No. 1	June 2026 (ISC26, Hamburg)
No. 2	El Capitan – Lawrence Livermore Lab, USA

Point	Details
Nos. 3–5	Frontier, Aurora (USA), JUPITER (Germany)
New entries	only 27 (lowest ever)
Top newcomer	Hangang (KISTI, South Korea) – No. 12

Background

- The TOP500 list has been issued twice a year since 1993 (June – ISC, Germany; November – SC, USA). Systems are ranked by their speed on the Linpack (HPL – High Performance Linpack) test. HPCwire says the November 2026 list is the first published by the ACM.
- Computer speed is measured in FLOPS (floating-point operations per second). 1 petaflop = 10^15 and 1 exaflop = 10^18 (one quintillion) operations per second. AP reports that LineShine crossed 2 quintillion calculations per second.
- LineShine also leads the HPCG test, which measures data-heavy real-world workloads (about 22 petaflops). It draws about 42.2 MW of power (AP). It uses Arm-based LX2 processors with 304 cores each; such a design without GPU accelerators is rare among top systems (ITPro).
- India's National Supercomputing Mission (NSM) is a joint initiative of MeitY and the Department of Science and Technology (DST). PIB said in May 2022 that 15 supercomputers with a combined capacity of 24 petaflops had been installed under it across the country.

Tamil Nadu link: 'PARAM PORUL', an 838-teraflop supercomputing facility built by C-DAC under NSM Phase 2, was opened at NIT Tiruchirappalli on 25 May 2022 (PIB).

Frequently asked questions

What is this news about?

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What are the key facts to remember for the exam?

List: 68th TOP500, November 2026; Released at: SC26, Chicago (USA); No. 1: LineShine – Shenzhen, China; Speed (HPL): about 2.2 exaflops (2.198).

What is the background to this news?

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Practice questions (with answers)

1. Who is called the 'father of supercomputing'?

A) Charles Babbage

B) Vijay Bhatkar

C) John von Neumann

D) Seymour Cray

Answer: D – Explanation: Seymour Cray (USA) – designed the CDC 6600 (1964) and the Cray-1 (1976). Vijay Bhatkar led India's PARAM effort.

2. TOP500 ranks supercomputers by their performance on which benchmark?

A) HPCG

B) Linpack (HPL)

C) Graph500

D) SPEC CPU

Answer: B – Explanation: Linpack (High Performance Linpack) – speed of solving linear equations. HPCG is a separate, secondary ranking.

3. LineShine runs at about 2.2 exaflops. One exaflop equals how many calculations per second?

A) 10^12

B) 10^15

C) 10^18

D) 10^21

Answer: C – Explanation: 10^18 (one quintillion). 10^12 is tera, 10^15 peta and 10^21 zetta.

4. LineShine runs on Arm-based processors. Arm processors follow which type of instruction-set design?

A) RISC

B) CISC

C) VLIW

D) EPIC

Answer: A – Explanation: RISC – Reduced Instruction Set Computer (ARM = Advanced RISC Machines). Intel and AMD x86 processors are CISC.

5. 'PARAM PORUL', opened in 2022 under the National Supercomputing Mission, is at which Tamil Nadu institution?

A) IIT Madras

B) NIT Tiruchirappalli

C) Anna University

D) PSG Tech, Coimbatore

Answer: B – Explanation: NIT Tiruchirappalli – 838 teraflops, opened 25 May 2022. NSM is a joint MeitY–DST mission.

Sources: HPCwire; CGTN; AP (via WSB-TV); ITPro; Network World; PIB. © Shanmugam IAS Academy.