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1. What is Jetson Orin Nano Super, Nvidia's affordable tiny supercomputer?**Introduction**

The Most Affordable
Generative AI
Supercomputer



Leading graphic processing units (GPUs) maker Nvidia recently introduced its new compact generative AI supercomputer. Jetson Orin Nano Super, comes at a lower price, boasts enhanced performance, and a software upgrade.

What made headlines, however, was Nvidia deciding to offer the dev kit for the supercomputer for as low as \$249 (around Rs 21,147). According to Nvidia, the Jetson Orin Nano Super Developer Kit fits in the palm of your hand. From commercial AI developers to students, the Jetson Orin Nano Super offers generative AI capabilities and performance to develop their own AI tools.

What is Jetson Orin Nano Super?

Nvidia has defined its latest offering as a "compact, yet powerful computer" that redefines generative AI for small edge devices. When it comes to performances, the Justin Orin Nano Super delivers up to 67 TOPS of AI, which is a 1.7 times improvement when compared to its predecessor. In simple words, TOPS or Trillions of Operations Per Second, is a key indicator to measure the computational prowess of AI chips and NPU chips (neural processing unit chips that mimic the human brain's neural network, which is designed to accelerate AI tasks).

The super computer is capable of running some of the most popular generative AI models such as vision transformers, large language models, vision-language models, etc. It features a memory bandwidth of 102 GB/s and CPU frequency of 1.7 GHZ. The computer does not come with built-in storage, and a user may be required to download the operating system to a microSD card to boot the system, much similar to a Raspberry Pie.

What's in the Jetson Orin Nano Super Developer Kit?

The developer kit is essentially a compact computing platform suitable for generative AI applications. It features an 8GB module based on Nvidia's Ampere GPU architecture with 1,024 CUDA cores, and 32 tensor cores. Both CUDA and tensor cores are specialised processing units in Nvidia's GPUs. The device comes with a 6-core ARM Cortex-A78 CPU, a processor that has been designed to deliver high-end performance at the best efficiency.

The carrier board on the supercomputer comes with connectivity options such as two camera connectors, four USB 3.2 ports, M.2 slots, and Gigabit Ethernet which allows the computer to connect with servers in local networks. The computer runs on the Nvidia AI software stack. Based on the features, the kit is compact, efficient, and developer-friendly.

What are the use cases of the Jetson Orin Nano Supercomputer?

While introducing the Jetson Orin Nano Super, Nvidia CEO Jensen Huang said that one could run Cuda, CudNN, and TensorRT and can be used to create an agentic AI that reasons and plans. Essentially, one can use it to build robots or workstations. The Jetson Orin Nano Super Developer Kit, although tiny, can help developers unravel an assortment of applications across industries. It can be put to use in a plethora of scenarios such as smart surveillance systems, robotics, smart retail, healthcare, AI-powered smart home devices and wearables, autonomous vehicles, research and education, content creation, etc.

When it comes to smart surveillance, the computer via camera connectivity can detect anomalies, and identify faces and objects in real-time. Robotics can use its high-performance AI for autonomous manufacturing, logistics, while healthcare can deploy the same to perform some simple tasks such as sorting and delivering. Moreover, small businesses will now be able to deploy generative solutions for predictive analytics and chatbots. In a way, Nvidia's latest tiny supercomputer is making AI accessible for businesses of all sizes.

Relevance: GS Prelims; Science & Technology

2. Parliamentary Standing Committee recommendations on MSP, debt waiver

Introduction



Parliamentary Standing Committee Recommends Implementation of Legally Binding MSP, Farm Loan Waiver

The Committee's recommendations come at a time when farmer unions have been staging protests at the Shambhu and Khanauri borders.

A parliamentary committee has recommended implementing a legal guarantee on Minimum Support Price, amid a slew of measures to improve farmers' welfare.

The Parliamentary Standing Committee on Agriculture, Animal Husbandry and Food Processing tabled its first report on demands for grants (2024-25) of the Ministry of Agriculture and Farmers Welfare in the 18th Lok Sabha.

The committee, chaired by former Punjab Chief Minister Charanjit Singh Channi, has additionally recommended increasing budgetary allocations,

compensation for stubble disposal and debt waiver among a slew of measures.

This report assumes significance amidst the protests by farmers' organisations since February at Khanauri and Shambhu, which border Punjab and Haryana respectively. Organisations including the Samyukta Kisan Morcha (non-political) and Kisan Mazdoor Morcha (KMM) have demanded a legal guarantee of MSP on all crops.

What are the key recommendations of this report?

Legal guarantee of Minimum Support Price

According to the committee, a legally binding MSP would ensure financial stability for farmers, reduce suicides, mitigate market volatility, alleviate debt burdens, and improve overall mental health among farmers.

According to the committee, the MSP mechanism aligns with broader national food security objectives by ensuring that foodgrains are available at stable prices, thus aiding public distribution systems.

The committee reiterated that the benefits of implementing the legal guarantee of MSP far outweigh its challenges. In particular, this could stimulate economic activity in these areas, benefiting local businesses and economies. With assured income through MSP, farmers are more likely to invest in their agricultural practices, leading to increased productivity and sustainability in farming.

The committee also pointed out that legally guaranteeing MSP would help contribute to long-term food security for the nation by stabilising the production of foodgrains. A legally guaranteed MSP would ensure consistent income for farmers, and allow them to plan better and maintain production without the fear of market fluctuations.

The committee has recommended that the department declare a roadmap for legally guaranteeing MSP at the earliest. This would also allow the central government to plan its finances accordingly and subsequently allow a smooth transition.

It has also suggested that the department may table a statement in the Parliament after every crop season giving details of the number of farmers who sold their produce at MSP and the existing gap between MSP and actualised market prices crops.

Compensation for disposing of paddy waste

The committee has recommended that farmers be compensated for managing and disposing of crop residue, or parali, to prevent them from burning it. The management of paddy stubble has been a major environmental concern, especially during winters when the national capital turns into a fast chamber.

The Punjab government has sought a bonus of Rs 2,000 per acre for farmers, offering to match half the grant if the centre covers the rest.

Increasing PM Kisan support

The committee has proposed increasing monetary support under the PM-KISAN Samman Nidhi scheme from Rs 6,000 per annum to Rs 12,000 per annum. It also recommended extending seasonal incentives to tenant farmers and farm labourers.

Referring to the NABARD Survey on Rural Financial Inclusion for 2022-23, the committee noted that while there had been a 57.6% increase in the average monthly income of rural households between 2016-17 and 2021-22, average monthly expenditure had surged by 69.4% over the

same period. "This imbalance indicates that while incomes are rising, expenses are outpacing income growth, leading families to borrow more," the committee said.

Debt waiver to combat farmer distress

The committee has recommended introducing a scheme to waive off the debts of farmers and farm labourers to combat the rise in farmer distress and suicides over debt repayment.

Citing the NABARD survey, the report said that the percentage of rural families taking loans has risen from 47.4% in 2016-17 to 52% in 2021-22.

The proportion of families with outstanding debts has also increased, indicating a heightened financial pressure on these agricultural households. More families now depend on loans to manage expenses, reflecting a concerning trend in rural financial health.

The committee has called for careful monitoring and targeted interventions to help farmers manage their debts sustainably while continuing to invest in their agricultural activities.

Increasing budgetary allocations

The committee highlighted the need to increase the budgetary allocation to agriculture to boost the sector's growth rate. It has pointed to the continuous decline in the budgetary allocation to agriculture as a percentage of the total central plan.

Despite higher absolute allocations from 2021-22 to 2024-25, the percentage share in the total Central plan outlay declined from 3.53% in 2020-21 to 2.54% in 2024-25. For context, agriculture's growth rate in 2023-24 (provisional estimates) declined to 1.4%, the lowest in the last seven years, compared to the average annual growth rate of 4.18% over the past four years.

Other recommendations

The committee suggested implementing compulsory universal crop insurance for smallholder farmers with landholdings of up to 2 acres, modelled after the Pradhan Mantri Jan Arogya Yojana (PM-JAY) health insurance scheme.

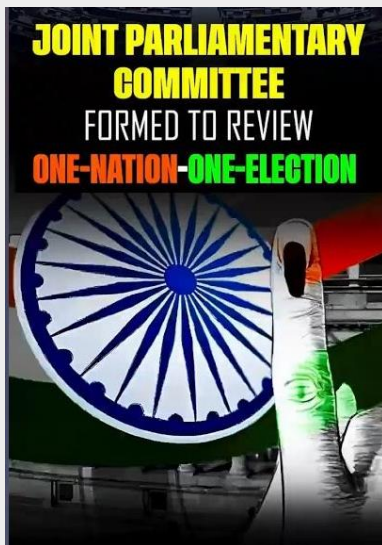
It has also recommended establishing a National Commission for Minimum Living Wages for Farm Labourers to address their long-pending rights.

The committee recommended renaming the Department of Agriculture and Farmers Welfare to the Department of Agriculture, Farmers, and Farm Labourers Welfare to reflect a broader focus on the welfare of agricultural labourers.

Relevance: GS Prelims & Mains Paper III; Economics

3. What is a joint committee of Parliament, to be set-up for 'One Nation, One Election' Bills?

Overall view



Law Minister Arjun Ram Meghwal will move a motion in Parliament for the Bills on the 'One Nation, One Election' proposal to be referred to a joint committee for further examination.

The JPC to examine the Bills will have 21 members from the Lok Sabha and 10 members from the Rajya Sabha, including Congress leaders Priyanka Gandhi Vadra and Manish Tewari, BJP's Bansuri Swaraj and Anurag Singh Thakur, and NCP's Supriya Sule.

Meghwal is also set to propose that the committee submit its report on the Bills on the first day of the last week of the next session. What exactly are JPCs supposed to do and how are they constituted? We explain.

What is a Joint Parliamentary Committee (JPC)?

A Joint Parliamentary Committee (JPC) is set up by the Parliament for a special purpose, like the detailed scrutiny of a subject or Bill. As the name suggests, it has members from both the Houses and from the ruling parties and the opposition. It is dissolved after its term ends or its task has been completed.

Some examples of joint committees include one on the Waqf Amendment Bill, 2024, set up in August this year, and on The Personal Data Protection Bill of 2019. Others are mandated to investigate alleged irregularities, such as of a financial nature. For instance, Congress members demanded earlier this year that a JPC investigate Hindenburg Research's allegations against Sebi chairperson Madhabi Puri Buch.

How is a JPC set up?

A JPC is set up after one House of Parliament has passed a motion and the other has agreed to it. Members of the JPC are decided by the Parliament. The number of members can vary.

What can a JPC do?

According to an article on PRS Legislative Research, the mandate of a JPC depends on the motion constituting it. For example, "The terms of reference for the JPC on the stock market scam asked the committee to look into financial irregularities, to fix responsibility on persons and institutions for the scam, to identify regulatory loopholes and also to make suitable recommendations," the PRS article said.

To fulfil its mandate in investigating an issue, a JPC can scrutinise documents and summon people for questioning. It then submits a report and makes recommendations to the government.

The proceedings and findings of the committee are confidential, except in matters of public interest. The government can decide to withhold a document if it is considered prejudicial to the safety or interest of the State. The Speaker has the final word in case of a dispute over calling for evidence.

How powerful is a JPC?

While the recommendations of a JPC have persuasive value, they are not binding on the government. The government can choose to launch further investigations based on what the JPC has said, but it can't be forced to do so.

"The government is required to report on the follow-up action taken on the basis of the recommendations of the JPC and other committees. The committees then submit 'Action Taken Reports' in Parliament on the basis of the government's reply," the PRS article says.

What JPCs have been set up so far?

A few JPCs have earlier been set-up, having investigative powers:

- (i) to examine matters relating to Allocation and Pricing of Telecom Licenses and Spectrum
- (ii) on Pesticide Residues in and Safety Standard for Soft Drinks, Fruit Juice and other Beverages
- (iii) on Stock Market Scam and Matters Relating thereto
- (iv) to enquire into irregularities in Securities and Banking Transactions
- (v) to enquire into Bofors Contract
- (vi) to examine the Constitutional and Legal Position Relating to Office of Profit."

Relevance: GS Prelims & Mains Paper II; Governance