

India to get cutting-edge military chip plant in groundbreaking US tech deal

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DELAWARE/NEW YORK: In a pathbreaking agreement with the US, India is all set to get its first national security semiconductor fabrication plant that will supply chips to the US armed forces, its allied militaries, and Indian defence forces. The fab will be set up in India in 2025 and will be called Shakti.

In the joint factsheet released after Prime Minister Narendra Modi's meeting with President Joe Biden in Delaware, the first paragraph in the section on charting a technology partnership for the future said that Biden and Modi "hailed a watershed arrangement to establish a new semiconductor fabrication plant focused on advanced sensing, communication, and power electronics for national security, next generation telecommunications, and green energy applications".

Addressing the diaspora later, Modi indirectly referred to the semiconductor agreement and said: "The day is not far when you will see made in India chips in America: this small thing will take India to another level. And this is Modi's guarantee".

The factsheet added that the fab will be established with the objective "of manufacturing infrared, gallium nitride and silicon carbide semiconductor", and will be enabled by the India Semiconductor Mission and a "strategic technology partnership between Bharat Semi, 3rdiTech, and the U.S. Space Force".

Behind that statement lies a story of remarkable convergence. The US national security establishment has trusted an Indian start-up, led by two young entrepreneurs, Vinayak Dalmia and Vrinda Kapoor, with technology to produce chips that will then feed into America's security infrastructure as well as that of its allies such as United Kingdom. The startup, 3rdiTech, is collaborating with General Atomics, a US defence major, on a series of significant projects to boost defence technology capacity in India.

The roots of the collaboration go back to the launch of the initiative on critical and emerging technologies (iCET) in January 2023, and more definitively,

'Shakti': Multimaterial military fabrication plant by 2025

A look at the semiconductor manufacturing plant that will be set up after a key agreement between India, US

TECHNOLOGY FOCUS

- Advanced sensing
- Communication
- Power electronics

APPLICATIONS

- National security
- Next-generation telecommunications
- Green energy
- Production capacity

INITIAL TARGET

50,000
units per year (Phase 1)

EMPLOYMENT

700

CHIP APPLICATIONS

Night vision, missile seekers, weapon sights, drones, satellites, fighter aircraft, electric vehicles, military communication, electronic warfare jammers, 5G/6G telecom

Modi's state visit to US in June 2023. Kapoor participated in the tech CEOs roundtable with Modi and Biden. The joint statement then had said, "The US Department of Defense's Space Force has signed its first International Cooperative Research and Development Agreement with Indian start-up H4 AI and 3rdiTech. Both companies will work with General Atomics to co-develop components using cutting edge technologies in AI and semiconductors respectively."

At a press briefing held around midnight on Saturday eastern time, soon after Modi landed in New York from Delaware, HT asked foreign secretary Vikram Misri, who also dealt with iCET in his previous role as deputy NSA, about the significance of the announcement, the technology transfer from the US Space Force, and whether this was India's first national security fab.

Misri said, "What this represents is first the increasing design and manufacturing capacities that are latent in India's semiconductor sector. We have always been known as a repository of design talent in so far as semiconductors are concerned. But this shows we are breaking into the fabrication part of it and with the right support, right incentives and right access to technology and partnerships from outside, Indian startups can actually make a global mark."

Misri added that in this case,

be supplemented by a design center, called Durga, with 250 people.

Those familiar with India's semiconductor journey hail it as a landmark moment for the semiconductor ecosystem. A US-India partnership on these extremely critical and controlled technologies makes India one of the few in the world to have the capacity to manufacture these chips.

The combination of central and state government support for the sector, the existing design skill, the recognition among partners that India and particular Indian companies have the tenacity and scale to emerge as a hub for the sector and add value at a time when the world is seeking diverse supply chains, and the strong support of the US national security establishment has come together to give the industry a huge boost.

Commenting on the agreement, Konark Bhandari of Carnegie India, who is a leading authority on the subject, said that while the details regarding the fab are scarce at the moment, it was a welcome step. "The ability to work in a trusted way with other countries and their suppliers, will be key for India, and for any other country, to position itself as a viable location for semiconductor operations. Even the 2022 US CHIPS and Science Act has been predicated on funding being allowed for a 'Secure Enclave' project. This project is intended to create a specialised facility to make chips for the defence establishment in the US."

Bhandari said that the fact that it was a "compound semiconductors fab" was forward-looking move. "This is important when you consider that compound semiconductors, essentially from two or more elements from the periodic table, show a lot of potential for growth. Compound semiconductors such as silicon carbide (SiC) or gallium nitride (GaN) are particularly well-suited for applications of high-power electronics, which are being used increasingly in renewable energy, among others, and are excellent in providing efficiency."

The joint factsheet has another announcement in the semiconductor space. Biden and

Modi praised "combined efforts to facilitate resilient, secure, and sustainable semiconductor supply chains including through GlobalFoundries' (GF) creation of the GF Kolkata Power Center in Kolkata".

This centre is expected to "enhance mutually beneficial linkages in research and development in chip manufacturing and enable game-changing advances for zero and low emission as well as connected vehicles, internet of things devices, AI, and data centers".