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

prashant the Whindustantimes com

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.

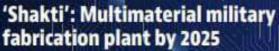
In the joint factsheet released after Prime Minister Narendra Modi's meeting with President Joe Biden in Delaware, the first paragraph in the section on charting a technology partnership for the future said that Biden and Modi "hailed a watershed arrangement to establish a new semiconductor fabrication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

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 sili con carbide semiconductor", and will be enabled by the India Semiconductor Mission and a strategic technology partnership between Bharat Semi, 3rdi-Tech, 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.



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

TECHNOLOGY

- Advanced sensing
- Communication
- Power electronics **INITIAL TARGET**

units per year (Phase 1)

EMPLOYMENT

- APPLICATIONS
- National security
- Next-generation telecommunications
- Green energy

Production capacity

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

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 sofar 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

Misri added that in this case,

there were "obviously national security elements" involved on both sides. There will be applications of the products in national security areas. Whether you can call it a national security fab, I will leave the labelling and adjectives to you. But yes I would say this is an enormously encouraging development. And we are sure there are many more startups that are capable of reproducing what these companies involved in this particular venture have done."

According to documents reviewed by HT, this will be the first "multi-material military fab" in the world. The advanced sensing infrared chips will be used for night vision, missile seekers, space sensors, weapon sights, soldier hand held sights, and drones. The advanced power electronic chips are to be used in satellites, drones, fighter jets, high altitude pseudo satellites. electric vehicles, renewable energy, data centers, and railway engines. And advanced communication radio frequency chips will be used in military communication, satellite communication, electronic warfare jammers, radar and 5G/6G telecom. The manufacturers aim to produce 50,000 units every year to start with in phase L The fab will employ 700 people.

To build India's first home grown Integrated Device Manufacturer, the companies will invest in a knowledge centre, called Saraswati, which will train 100 people per year. And this will be supplemented by a design center, called Durga, with 250

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 canacity to manufacture these chins.

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

Bhandari said that the fact that it was a "compound semiconductors fab" was forwardlooking 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, Al, and data centers".