

India's Major Leap into Semiconductor Manufacturing: 3 Plants, Rs 1.26 Lakh Crore Investment Get Govt Nod

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Why in News?

- The Indian government has taken a significant step toward becoming self-reliant in semiconductor production by approving the establishment of 3 semiconductor fabrication units.
- The approvals involve an investment of Rs 1.26 lakh crore (\$15.2 billion) including Rs 76,000 crore support under the 'Development of Semiconductors and Display Manufacturing Ecosystem' programme.

About the Announcements of the Indian Government

- A semiconductor fab in Dholera, Gujarat: This will be established by Tata Electronics in collaboration with Taiwan's Powerchip Semiconductor Manufacturing Corp.
 - The facility is projected to produce 50,000 wafers per month and will require an investment of Rs 91,000 crore.
 - It will specialise in producing high-performance computer chips using 28 nm technology that will find applications in EVs, telecom, defence, etc.
- A semiconductor unit in Morigaon, Assam: This will be set up by the Tata Semiconductor Assembly and Test Pvt Ltd (TSAT), with an investment of Rs 27,000 crore.
 - This is poised to churn out an impressive 48 million chips per day, catering to the automotive and electric vehicle sectors.
- A semiconductor unit in Sanand, Gujarat: This will be established by CG Power, in conjunction with Japan's Renesas Electronics Corp and Stars Microelectronics of Thailand, with an investment of Rs 7,600 crore.
 - The construction of these plants will commence within the next 100 days.

Significance of the Move

- Semiconductors (essential for defence, automobiles and telecommunications sectors) have grown into a key geopolitical battleground, with the US, Japan and China investing heavily in developing domestic capabilities.
- As global demand for semiconductors surges, India's initiative to build domestic chip-making capabilities signifies a major leap towards –
 - Technological autonomy and
 - Reduced import dependency, particularly from manufacturing giants like Taiwan.
- These developments are part of India's broader vision to position India as a global hub for semiconductor manufacturing.
- The initiative is expected to bolster India's semiconductor market, projected to reach \$63 billion by 2026.
- With these units, the semiconductor ecosystem will get established in India and advanced packaging technologies will be indigenously developed in India.
- Finally, the establishment of these units is anticipated to create ~20,000 direct advanced technology jobs and around 60,000 indirect jobs and will catalyse growth in related sectors.

Challenges for India

- India's chip incentive plans are focused on boosting all three aspects (ATMP facilities; OSAT plants; and Full-scale foundries) of the semiconductor ecosystem.
 - However, India's close allies (US, EU) have rolled out more lucrative incentive schemes than New Delhi.
- The country is focusing on older nodes like 28 nm. TSMC, the most influential and important chip company in the world today, which counts Apple as a customer, is currently making chips with a node size of 3 nm.
- The other issue is the talent pool. While India is the biggest back office for design engineers of all major chip companies, skilled talent that can work on factory floors of a fabrication plant is still hard to come by.
- India also currently lacks in original research in semiconductor design, where the future of the chip is decided.

Steps Taken by India

- The Indian government is aware of these shortcomings and is in the process of setting up a R&D lab at Semiconductor Laboratory (SCL) in Mohali.
 - It is working on a Rs 10,000 crore modernisation plan for the organisation, and a large chunk of that will go towards setting up the Bharat Semiconductor Research Centre.
 - Here, a majority of the research will focus on developing chips that can address India's unique needs and demands.
- In 2021, the government had rolled out a Rs 76,000 crore chip incentive scheme, under which the Centre offered half the amount of a plant's capital expenditure costs as subsidy.
- There are schemes like the production linked incentive (PLI) plan for smartphone and laptop manufacturing, where the government is offering a subsidy to companies on the basis of their sales bills.

Way Ahead for India

- The government's commitment, coupled with significant private sector investments, underscores the strategic importance of developing indigenous capabilities in semiconductor fabrication and assembly.
 - As construction progresses and operational capabilities develop, India will attract more global players, mirroring the success seen in its smartphone assembly industry.
 - These initiatives represent a milestone in India's journey towards technological self-sufficiency and positions the country as a potential leader in the global semiconductor market.
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Q1) What is the India Semiconductor Mission (ISM)?

The ISM launched in 2021 with a total financial outlay of Rs76,000 crore under the aegis of the MeitY to provide financial assistance to businesses operating in the semiconductor, display manufacturing, and design ecosystems.

Q2) What is the growth potential of India's Semiconductor market?

The Indian semiconductor market is currently valued at approximately \$23.2 Bn and is projected to reach \$80.3 Bn by 2028, growing at a compound annual growth rate (CAGR) of 17.10% during the forecast period.

Source: [Big leap for chip mission: 3 plants, Rs 1.26 lakh crore investment get Govt nod | IE | Tol](#)

Source: <https://vajiramandravi.com/current-affairs/semiconductor/>

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