

Chip production: A long way to go

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NEW DELHI: When the Covid-induced lockdown compelled every industry to shut temporarily, it disrupted the supply chain of semiconductor industry.

Termed as the most vital part for any electronic item, the shortage of semiconductors created massive problems for the electronic manufacturing industries. It dented 169 industries, including automobiles, computers, mobile phones, healthcare equipment and others.

Not only in India, the semiconductor shortage was felt across the world. Perhaps, this is the reason why the country quickly decided to become self-sufficient in making semiconductor chips, and has allocated Rs 76,000 crore production-linked incentives (PLI). The purpose is to set up over 20 semiconductor design, components manufacturing and display fabrication units in India over the next six years.

"The PLI will invite direct investment of Rs 1.7 lakh crore in the next six years," said Ministry of Electronics and Information Technology Minister Ashwani Vaishnav, while unveiling the scheme.

"Under this programme, around 15-20 MSME units will be created."

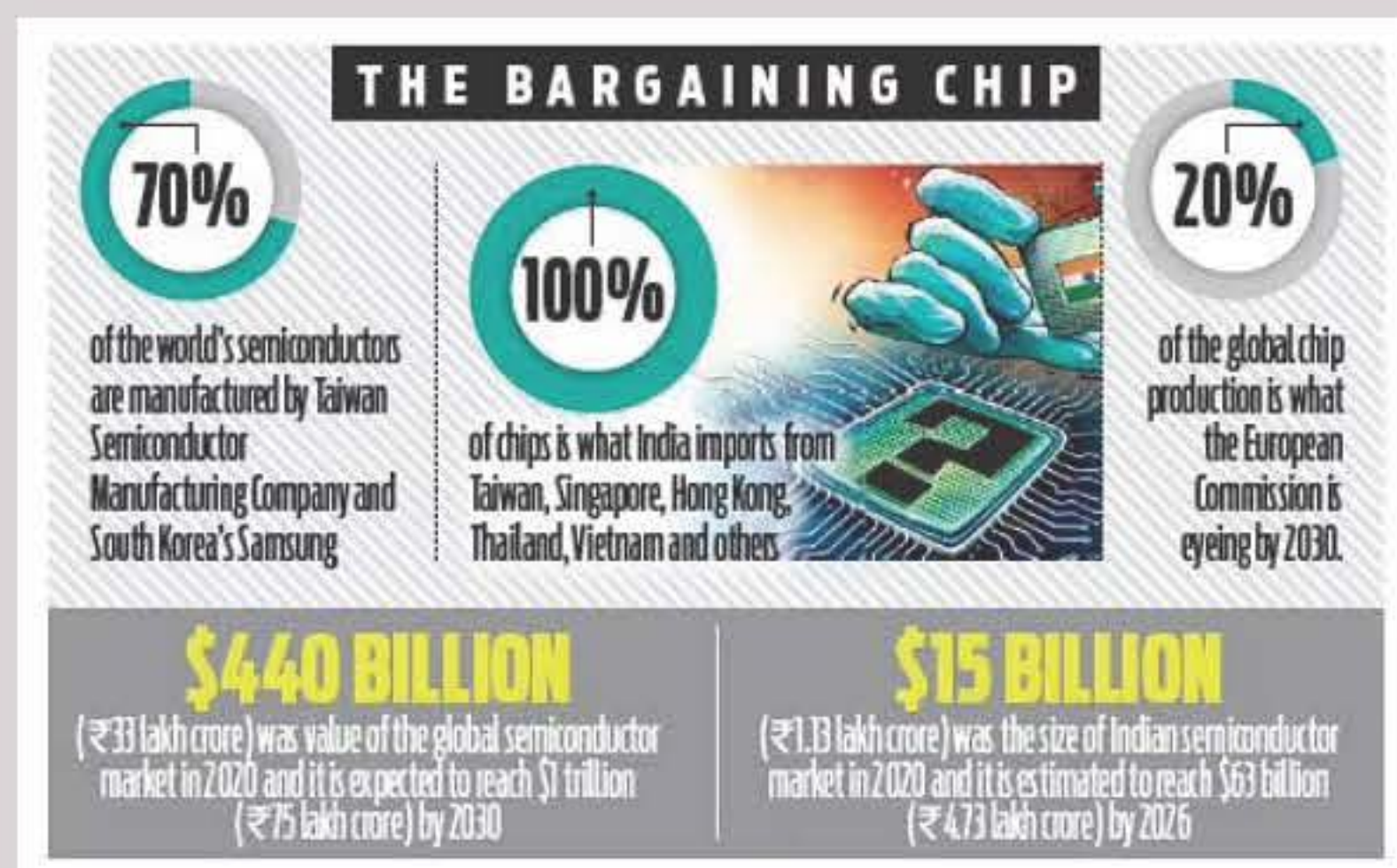
The government also notified its policy to provide up to 50% of the cost for setting up two semiconductors and two display fabrication units, R&D centres, skill development centres and others.

However, the government's move failed to impress industry specialists. They have all welcomed the move but also question its implementation. Overall, it seems India has a long way to go before becoming self-sufficient in the semiconductor industry.

Importance of chip

Semiconductors are used to power a vast array of electronic devices, ranging from smartphones and cloud servers to modern cars, industrial automation, critical infrastructure and defence systems. Producing it requires a lot of components and technicalities. "Semiconductor manufacturing is a complex, capital and technology intensive process of fabricating semiconductor wafers," a government notification said.

Only a few countries have mastered its production and the rest are dependent on its import. Taiwan's TSMC (Taiwan Semiconductor Manufacturing Company) and South Korea's Samsung manufacture as much as 70% of the world's semiconductors.



A developing country like India can't depend on one country for this vital product. The European Commission has unveiled a public-private semiconductor alliance to increase its share of global chip production to 20% by 2030. South Korea has also offered incentives to attract \$450 billion investments by 2030.

India has emerged as a centre of semiconductor research and design but it is yet to produce the chips locally. For India, Semiconductor Manufacturing Company (TSMC) and the United Microelectronics Corporation (UMC) may start its project soon. Anil Aggarwal-led Vedanta is ready to invest up to Rs 60,000 crore to set up a sophisticated chip and glass manufacturing ecosystem. Tata group is in talks with three states to invest up to \$300 million to set up a semiconductor assembly.

What numbers say

India imports 100% of chips from Taiwan, Singapore, Hong Kong, Thailand and Vietnam, so do other countries in the world. Post-pandemic, the demand went up rapidly with focus on digitalisation. As per Deloitte study, PC sales rose by more than 50% on year in early 2021 while cloud computing data center chip purchases went up by 30%.

The Indian government in its notification said that the global semiconductor market was Rs 33 lakh crore in 2020 and expected to reach Rs 75 lakh crore by 2030. The Indian semiconductor market stands at Rs 1.13 lakh crore in 2020 and is estimated to reach Rs 4.73 lakh crore by 2026. By 2030, India's semiconductor market will be driven by wireless communications, consumer electronics and automotive electronics with 24%, 23% and 20% of the market share, respectively.

Experts claim

While experts did welcome the government's Rs 76,000-crore PLI scheme, they also questioned its implementation. Anil Kadam, vice-chairman of IEEMA (Indian Electrical and Electronics Manufacturers Association) smart grid division, said, "I know it is a very small amount for such a big project. However, if it succeeds to bring even one foreign manufacturer or establish one fab, it would be a great achievement."

Echoing the same view, vice-president of India Electronics and Semiconductor Association (IESA) Sandeep Aurora said, "It's a very good start and the amount is sufficient for now. Obviously, as we make progress, we can add more budget to it."

India has been trying to attract foreign companies to set up semiconductor manufacturing units since 2006. It waived custom duty in 2017 and sought expression of interest in 2020. However, these efforts did not receive much response. Experts urge the government to provide an environment that is conducive for doing business to attract foreign investments.