3. 1 trillion Semiconductor - Science & Technology

India sets eyes on $1-trillion semiconductor market; PM promises faster approvals. To become a global semiconductor leader, India is aggressively promoting domestic manufacturing through its SEMICON India Programme and the India Semiconductor Mission (ISM). The strategy involves significant financial incentives and building a complete ecosystem to attract global investment and leverage India's strengths in design, materials, and services.

Overview - India's Semiconductor Ambition

At the 4th Edition of the SEMICON India 2025 conference, the Prime Minister of India unveiled an ambitious and strategic roadmap aimed at establishing the nation as a global leader in semiconductor design and manufacturing. This initiative is a cornerstone of India's plan to achieve technological self-reliance and economic security in the digital age.

Why Semiconductors Are Critically Important

Semiconductors are the fundamental building blocks of all modern electronics and are indispensable for technological progress.

Backbone of Modern Electronics - They are the essential components that power a vast array of devices, from everyday gadgets like smartphones and laptops to advanced systems like electric vehicles (EVs), AI servers, and data centers.

Strategic National Asset - In an era of increasing digitalization and automation, control over the semiconductor supply chain has become a matter of economic security and strategic independence. Their applications are critical for national infrastructure, including defense systems, aerospace technologies, and telecommunications.

India's Semiconductor Ecosystem and Governance

The Government of India has established a robust framework to nurture and grow its domestic semiconductor sector.

Ministry of Electronics and Information Technology (MeitY)

Nodal Agency - MeitY is the primary government body responsible for formulating and implementing India's comprehensive strategy for the semiconductor and display ecosystem.

Core Goals - Its objectives are multifaceted and include -

1. Building a vibrant and self-sustaining ecosystem for semiconductor design and manufacturing within India.
2. Attracting significant global investments and fostering strategic partnerships with leading international firms.
3. Supporting domestic startups and innovators in the chip design space through targeted fiscal incentives and policy support.

India Semiconductor Mission (ISM)

Implementation Arm - ISM operates as an Independent Business Division within the Digital India Corporation.

Nodal Agency for Schemes - It functions as the dedicated agency for executing all schemes approved under the broader SEMICON India Programme.

Key Fiscal Schemes under ISM - The mission offers substantial financial support to attract investment across the value chain -

1. **Semiconductor Fabs -** Provides fiscal support of up to 50% of the total project cost.
2. **Display Fabs** - Offers similar support of up to 50% of the project cost.
3. **Compound Semiconductors & ATMP (Assembly, Testing, Marking, and Packaging) -** Provides support for 50% of the capital expenditure.
4. **Design Linked Incentive (DLI) Scheme -** Aims to nurture the design ecosystem by offering support to 23 chip design startups and projects.

Recent Milestones and Achievements

` India's semiconductor ambitions have recently been bolstered by several significant achievements.

SEMICON India Programme (2025) - This flagship program was launched with an initial outlay of ₹76,000 crore and is being implemented by the ISM. The theme for the 2025 conference was 'Building the Next Semiconductor Powerhouse'. The event saw participation from over 350 global companies, highlighting India's growing prominence in the sector.

First 'Made in India' Chip - The Union IT Minister presented the first indigenously developed chip, a collaborative effort between ISRO's Vikram Sarabhai Space Centre (VSSC) and the Semiconductor Laboratory (SCL) in Chandigarh.

First OSAT Pilot Line - India successfully launched its first Outsourced Semiconductor Assembly and Test (OSAT) pilot facility in Sanand, Gujarat, marking a crucial step in building the downstream value chain.

Approval of Major Projects - The government has approved four major semiconductor projects from companies including SiCSem, CDIL, 3D Glass Solutions Inc., and ASIP.

Fast-Tracking the India Semiconductor Mission (ISM)

The government is actively working to accelerate the pace of development and investment in the sector.

Expanded Project Portfolio - In 2025 alone, India approved five new semiconductor projects, bringing the total number of approved projects to ten. This represents a massive combined investment of $18 billion (approximately ₹1.5 lakh crore).

Next Phase of ISM - The mission is being enhanced to be more efficient and investor-friendly -

Faster Approvals - Clearances are being expedited through the National Single Window System, which integrates both central and state-level approvals into a single portal.

Reduced Timelines - There is a strong government commitment to reduce the time from 'file to factory', ensuring projects can be operationalized more quickly.

Long-Term Focus - The policy is shifting from offering short-term incentives to creating a stable environment that supports long-term, sustainable investments.

India's Potential in the Global Semiconductor Market

India is uniquely positioned to become a significant player in the global semiconductor industry, which is projected to become a USD 1 Trillion market by 2030.

India has the capacity to contribute to the three primary pillars of the semiconductor manufacturing supply chain -

1. **Equipment -** India can leverage its strong and extensive base of Micro, Small, and Medium Enterprises (MSMEs) to manufacture high-precision components and sub-assemblies for semiconductor production equipment.
2. **Materials -** The country is a rich source of essential raw materials, including various chemicals, minerals, and specialty gases that are critical for the semiconductor supply chain.
3. **Services -** India's biggest strength lies in its human capital. It possesses a vast talent pool in R&D, logistics, and supply chain management, along with world-class expertise in high-tech fields like Artificial Intelligence (AI), big data, cloud computing, and the Internet of Things (IoT).

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