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MAGAZINE NOTES

Semicon 2.0: India Semiconductor Mission Enters Its Second Phase

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SCIENCE & TECH

GS3

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Semicon 2.0: India Semiconductor Mission Enters Its Second Phase

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Feature analysis for PIB July 2026, built from verified PIB and ministry data.

On 15 July 2026 the Union Cabinet approved **India Semiconductor Mission 2.0**, popularly called **Semicon 2.0**, with a budgetary outlay of **Rs 1,27,500 crore** (about Rs 1.27 lakh crore). It is the second phase of the **Semicon India Programme**, the flagship effort steered by the **India Semiconductor Mission (ISM)** under the Ministry of Electronics and Information Technology (MeitY). If Semicon 1.0 was about laying the foundation, building the country's first commercial fabrication and packaging capacity, Semicon 2.0 is about **deepening and widening the ecosystem** so that India owns more of the value chain rather than assembling at the tail end of it.

WHY IN NEWS

India's chip strategy has been criticised for concentrating on **fabs and packaging** while remaining dependent on imported equipment, materials and, crucially, imported chip designs. Semicon 2.0 is the government's answer. The programme explicitly shifts incentive weight toward **domestic manufacturing of semiconductor equipment, machines and materials**, and toward **indigenous chip design with Indian-owned intellectual property**. For the first time the mission treats **design and IP ownership** as a strategic goal in its own right, not a by-product of manufacturing.

FROM SEMICON 1.0 TO SEMICON 2.0

Semicon 1.0 focused on creating foundational chip-making capacity through **semiconductor fabs** and **ATMP/OSAT** (Assembly, Testing, Marking and Packaging by Outsourced Semiconductor Assembly and Test units). Semicon 2.0 builds on that base and broadens the aperture to the parts of the value chain that determine long-term self-reliance.

DIMENSION	SEMICON 1.0	SEMICON 2.0
Core focus	Fabs and ATMP/OSAT capacity	Equipment, materials, design, IP, R&D, talent
Strategic aim	Build first manufacturing base	Reduce import dependence across the chain
Design and IP	Peripheral	Central objective with indigenous IP push
Talent and R&D	Limited	Dedicated funding for industry-led centres

KEY COMPONENTS AND FIGURES

Semicon 2.0 spreads support across the full stack: **chip design, machines and materials, semiconductor fabs, ATMP/OSAT, research and development, and ecosystem expansion**. A notable line item is a dedicated allocation of **Rs 1,000 crore** for **industry-led research, development and training centres for FY 2026-27**, signalling that talent is treated as strategic infrastructure. The government expects the programme to catalyse total investment of roughly **Rs 4 lakh crore** across the ecosystem over its life.

The central logic is **backward integration**: rather than importing the lithography machines, ultra-pure chemicals, gases and photoresists that a fab consumes, Semicon 2.0 wants a domestic supplier base for these inputs. This is what makes a semiconductor ecosystem resilient, because a fab that depends entirely on imported machines and materials is only as secure as its supply chain.

STRATEGIC AND ECONOMIC SIGNIFICANCE

Semiconductors are a **critical and strategic technology**. They sit inside everything from smartphones and cars to defence systems and power grids, which is why chip supply has become a matter of national security and geopolitics. India's push aligns with a global trend of major economies reshoring and de-risking chip supply chains. For India the twin goals are to **cut a large and growing import bill** and to **build sovereign capability** in a technology that underpins the digital economy.

The emphasis on **indigenous IP** matters because owning the design, not just the assembly line, is where the highest value and the deepest strategic control reside. A country that only assembles chips designed abroad remains dependent; a country that designs its own chips controls its technological destiny.

UPSC ANGLE

- **GS3 (Science and Technology, Economy):** Indigenisation of technology, industrial policy, and self-reliance in critical sectors. Semicon 2.0 is the standard example for questions on India's semiconductor strategy.
- **Prelims:** Remember the outlay (**Rs 1,27,500 crore**), the nodal body (**India Semiconductor Mission under MeitY**), and the meaning of **ATMP/OSAT**.
- **Mains way forward:** Argue for sustained talent pipelines, water and power reliability for fabs, and international partnerships for equipment and materials, while guarding against over-reliance on any single foreign supplier.

Facts Corner: ISM (India Semiconductor Mission) is the implementing agency; Semicon 2.0 was approved on 15 July 2026 as part of a larger Cabinet package; the design-and-IP focus is the defining shift from Phase 1 to Phase 2.



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