



CURRENT AFFAIRS



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Semiconductors Manufacturing

This article covers “Daily Current Affairs” and the topic details Semiconductors Manufacturing. The government has been pushing semiconductors manufacturing through various schemes like PLI etc. The topic “Semiconductors Manufacturing” has relevance in the Science and Technology section for the UPSC CSE exam.

Relevance of Semiconductors Manufacturing for UPSC-CSE

For Prelims:

- *What are semiconductors?*
- *Types of semiconductors*
- *Details of the Production linked Incentive (PLI) scheme*

For Mains:

- *GS 3: Science and Technology*
- *Role of PLI scheme to augment Semiconductor manufacturing in India.*

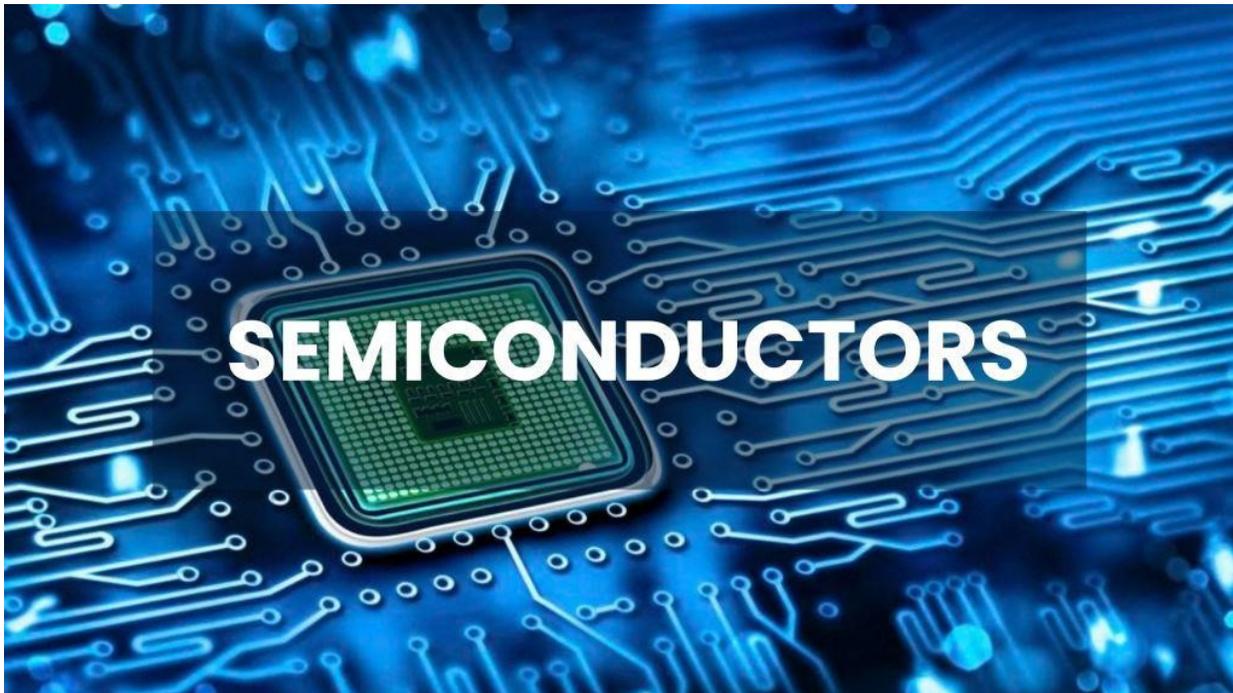
Why in the news?

As a means to attract more of the electronics supply chain to India, the Union Government has distributed approximately ₹1,645 crores in performance-linked incentives (PLI) to electronics manufacturers up to this point. Semiconductors are an important part of the electronics industry.

WHAT ARE SEMICONDUCTORS?

Semiconductors are materials that have electrical conductivity between that of a conductor and an insulator. They are used in a wide range of electronic devices and are essential components of modern electronics.

Semiconductors can be pure elements like silicon or germanium, or they can be compounds like gallium arsenide or cadmium selenide. These materials are carefully chosen for their specific properties to perform various functions in electronic devices.



Semiconductors

WHAT IS THE ROLE OF SEMICONDUCTORS IN THE ELECTRONICS INDUSTRY?

Semiconductors play a critical role in the electronic industry. They are a foundational element in the electronics industry:

- **Fabrication of electronic devices:** They are used to create electronic components such as transistors, diodes, and integrated circuits, which are essential building blocks for electronic devices like computers, smartphones, televisions, and many other consumer electronics.
- **Control the flow of current:** They are used to control the flow of electrical current, which makes them ideal for switching and amplifying electronic signals.
- **Use as sensors:** They can also be used as sensors to detect light, temperature, pressure, and other physical properties.
- **Use in solar cells:** They are used in solar cells to convert sunlight into electrical energy, and in LEDs (light-emitting diodes) to produce light.



Semiconductor

WHY IS THE INDIAN GOVERNMENT FOCUSING ON SEMICONDUCTORS MANUFACTURING?

- **Promote domestic manufacturing of electronics:** The Indian government is focusing on semiconductor manufacturing as a part of its broader strategy to promote domestic manufacturing as major electronic devices use semiconductors.
- **Reduce the country's dependence on imports:** China is an important semiconductor manufacturing country. India sources its requirements for semiconductors from China. In order to lower the trade deficit and reduce dependence, the Indian government is making a push.
- **Reduce supply chain disruptions:** India being an importing nation is vulnerable to supply chain disruptions caused as a result of trade tensions or geopolitical conflicts.
- **Create self-sufficiency and self-reliance:** This is an effort towards AtmaNirbhar Bharat to attain self-sufficiency in products and processes.
- **Create Employment opportunities:** It is a high-tech and capital-intensive industry that offers high-value job opportunities and generates significant economic benefits.
- **Augment Exports:** India can become a leader in semiconductor manufacturing that can be exported to other countries. This not only earns foreign exchange but also creates a durable market.
- **Create a thriving ecosystem:** The Indian government hopes to attract investments, boost innovation and R&D, and create a thriving semiconductor industry in the country.

- **Drive economic growth:** All the above processes of growth, employment, and exports can drive higher economic growth.

WHAT ARE GOVERNMENT SCHEMES TO PROMOTE SEMICONDUCTOR MANUFACTURING?

The Indian government has launched several schemes and initiatives to promote semiconductors manufacturing in the country. Here are some of the notable ones:

- **Production-Linked Incentive (PLI) scheme for the electronics industry:** It offers incentives to eligible companies that manufacture electronic components and semiconductors in India. The scheme aims to promote domestic manufacturing, reduce import dependence, and increase exports. Under this scheme, the government has allocated a budget of INR 41,000 crore over five years, starting from 2020-21.
- **National Policy on Electronics (NPE):** The NPE is a comprehensive policy framework that aims to make India a global hub for electronics manufacturing. The policy was first introduced in 2012 and was revised in 2019. The policy outlines a roadmap for the development of the electronics industry in the country, with a focus on semiconductors manufacturing.
- **Modified Special Incentive Package Scheme (M-SIPS):** The M-SIPS was launched in 2012 and offers financial incentives to eligible companies that invest in the electronics industry in India. The scheme provides subsidies for capital expenditure, interest on loans, and reimbursement of certain taxes and duties. The M-SIPS scheme has been extended until 2023.
- **Electronics Manufacturing Clusters (EMC) scheme:** The EMC scheme was launched in 2012 and aims to create world-class infrastructure for electronics manufacturing in the country. The scheme provides financial assistance for the establishment of greenfield EMCs and the upgradation of existing industrial estates.

Source:
[Semiconductor.org](https://www.semiconductor.org)
[The Hindu](https://www.thehindu.com)

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