Chip Design Center Launched in Noida

Why in News?

The **Union Minister** of **Electronics and Information Technology** inaugurated India's first **3-nanometer (3nm) chip design centre in Noida,** Uttar Pradesh.

Key Points

- **Achievement of 3nm technology:**
  - This technology is much more advanced than the existing 7nm and 5nm.
  - This enables **higher performance, lower energy consumption, and greater computing efficiency.**
  - It represents the pinnacle of innovation at the design level, which is now being realised in India.
  - This centre has been established by **Renesas Electronics India**, a company of Japanese origin.
- **Supporting the Government Strategy**:
  - This initiative is part of **the Indian government's** broader strategy to develop the semiconductor ecosystem.
  - The government is looking to empower **the semiconductor ecosystem** by incorporating design, manufacturing, **ATMP (Assembly, Testing, Marking, Packaging)** and supply of related equipment.
  - It is being implemented under **India's Semiconductor Mission** and **Production Linked Incentive (PLI) scheme.**
- **Global recognition and confidence** :
  - India's semiconductor capabilities are being appreciated at global forums like **the World Economic Forum (Davos).**
  - This has increased the confidence of **international companies and investors** towards India.

India's Semiconductor Mission (ISM)

- **Introduction:**
  - ISM was **launched in 2021** under the aegis of the **Ministry of Electronics and Information Technology (MeitY)** with a total financial outlay of Rs.76,000 crore.
  - This is part of a comprehensive programme to develop a sustainable semiconductor and display ecosystem in the country.
  - The objective of this program is to provide financial support to companies investing in the semiconductor, display manufacturing and design ecosystem .
  - It is envisaged that ISM will act as the nodal agency for efficient, consistent and smooth implementation of the schemes under the leadership of global experts from the semiconductor and display industry .
- **Ingredients:**
  - Plans to set up semiconductor fabs in India:
    - It provides financial assistance to eligible applicants for setting up **semiconductor fab (manufacturing plant)** with the aim of attracting investments for setting up semiconductor wafer fabrication facilities in the country.
- **Semiconductor chips:**
  - It is a small electronic device made from a **semiconductor (silicon or germanium)**, which serves as the basic building block of most electronic circuits.
  - These chips can contain billions of microscopic switches on a chip smaller than a fingernail.
  - The basic component of a semiconductor chip is a **silicon wafer** built of tiny transistors , which control electric current according to various computational instructions.
  - It performs various functions, such as processing data , storing information or controlling electronic devices.
  - They are a vital part of almost every modern electronic device, including smartphones, computers, and integrated circuits.