

GOVERNMENT OF INDIA
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
RAJYA SABHA
UNSTARRED QUESTION NO. 2477
TO BE ANSWERED ON: 13.03.2026

R&D IN SEMICONDUCTOR

2477 # SMT. SEEMA DWIVEDI:
SHRI KESRIDEVSINH JHALA:
SHRI AMAR PAL MAURYA:

Will the Minister of ELECTRONICS AND INFORMATION TECHNOLOGY be pleased to state:

- (a) the research facilities and pilot lines supported for semiconductor Research and Development (R&D) during the last year;
- (b) whether indigenous design or materials programmes achieved milestones;
- (c) if so, the details thereof;
- (d) the manner in which coordination with Ministry of Science and Technology and industry partners was structured;
- (e) whether skill gaps were identified in advanced fabrication research;
- (f) if so, the details thereof; and
- (g) the measurable outputs achieved so far?

ANSWER

MINISTER OF STATE FOR ELECTRONICS AND INFORMATION TECHNOLOGY
(SHRI JITIN PRASADA)

(a) to (g): The semiconductor development strategy is inspired by Hon'ble Prime Minister's vision of Atmanirbhar Bharat and Make in India, Make for the world. As part of this strategy, India aims to develop a complete ecosystem, ranging from R&D, design, fabrication, assembly, testing, packaging and module manufacturing and talent development.

The Government recognises that R&D is critical for building a strong semiconductor ecosystem. As a foundational industry, advancements in semiconductor R&D drive innovation, cost efficiency and global competitiveness. It also ensures a high product performance and reliability in this rapidly evolving technology sector.

Semicon India Programme

The Government launched the 'Semicon India Programme' for the development of semiconductor and display manufacturing ecosystem in the country. Following are salient achievements under this Programme:

- In a short span of three years, investment commitments of about ₹1.6 lakh crore have been received

- 10 units have been approved, including 2 fabs and 8 ATMPs/OSATs, with construction progressing rapidly
- One unit has started commercial production and 3 units are doing pilot production
- Most approved projects incorporate pilot lines for product testing and qualification. Few proposals also include dedicated R&D activity

To complement manufacturing, the Design Linked Incentive (DLI) Scheme promotes design, development, and deployment of semiconductor products such as Integrated Circuits (ICs), Chipsets, System on Chips (SoCs), Systems & IP Cores.

It also provides infrastructure support for chip design to eligible applicants, including access to EDA tools, IP cores, and fabrication facilities.

- 24 projects have been approved for the design of semiconductor chips & SoCs, with a total project value of Rs. 900 crore
 - These projects address critical sectors such as video surveillance, drone detection, energy metering, microprocessors, satellite communications, and broadband and IoT SoCs.
 - Out of 24 projects, 14 companies have raised venture capital funding to scale up and productize their solutions.
 - ₹650 crore raised in VC funding by Indian semiconductor startups
 - 7 chips have been successfully fabricated out of 16 designs taped out across multiple foundries, including advanced nodes such as 12 nm at TSMC
- 105 fabless chip design companies have been supported with access to advanced chip design infrastructure, cumulatively consuming 60 lakh hours of tool usage
- 315 Universities are getting access to advanced EDA tools for the students. So far, the usage of these tools has exceeded 185 lakh hours
- 146 designs taped out by 49 institutions across India out of which SCL has successfully fabricated and packaged 94 student-designed chips

Building on the success of Semicon India Programme, Union Budget 2026-27 announced India Semiconductor Mission 2.0 for equipment and materials, design full stack, Indian IP and fortify supply chains.

Global Capability Centers(GCCs)

As per Industry estimates, India has emerged as a global hub for semiconductor design and R&D. India hosts about 7% of the world's Global Capability Centres (GCCs) of Semiconductor domain and employs nearly 20% of the global semiconductor chip design workforce.

Indian engineers working in these GCCs contribute to the design, verification, and development of cutting-edge semiconductor technologies. Our engineers are now designing the advanced nodes including 2 nm chips and other globally competitive products.

Innovation through dedicated Schemes

To strengthen the innovation ecosystem, the Department of Science and Technology (DST) is implementing two complementary initiatives:

1. Anusandhan National Research Foundation (ANRF)

Supports academic research, industry collaboration and translational research across priority areas such as AI, deep tech, climate, health, semiconductors and advanced materials, with an outlay of ₹50,000 crore over five years

2. Research, Development and Innovation (RDI) Fund

With an allocation of ₹1 lakh crore, the scheme supports late-stage 79 technology development and commercialisation focusing on critical technologies such as AI, quantum computing, robotics and biotechnology

Together, ANRF and RDI address the full innovation pipeline, from knowledge creation in academia to industrial deployment and commercialization.

Specific Projects supported by MeitY

Additionally, MeitY supports R&D projects across academic institutions, research organizations, and startups in areas of semiconductors such as nanotechnology, semiconductor materials, processes, chip design, and IP cores.

Notable initiatives include:

1. Project titled “Next Generation AMOLED Displays, OLED Lighting and OPV Products” (IIT Madras)

- Project with an outlay of ~₹42 crore
- Aims to develop prototypes for mobile phones and enable cost-effective electronic component manufacturing in India

2. Gallium Nitride (GaN) Ecosystem Initiative-GEECI (IISc Bengaluru)

- Project Implemented through FSID, IISc Bengaluru with an outlay of ~₹334 crore
- Focused on building an end-to-end ecosystem for GaN-based electronics manufacturing for high-power and high-frequency RF electronics

3. Indian Nanoelectronics Users’ Programme (INUP)

- Supports R&D in micro and nanoelectronics using nano-centres established by MeitY at IISc Bengaluru and IITs
- Promotes research in MEMS, compound semiconductors, sensors and photovoltaics, along with startup incubation and prototyping support

Furthermore, MeitY’s dedicated society, the Centre for Materials for Electronics Technology (C-MET), continues to advance research in semiconductor materials and allied domains.
