

GOVERNMENT OF INDIA
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
LOK SABHA
UNSTARRED QUESTION NO. 1760
TO BE ANSWERED ON: 08.12.2021

SEMICONDUCTOR CHIP MANUFACTURING

1760. COL. RAJYAVARDHAN RATHORE:

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

- (a) the details of the Government action plan towards boosting semiconductor chip manufacturing and funding its research incentives in India in the light of global shortage;
- (b) the details of the Government action plan in providing stable electricity and water supply for the highly sophisticated chip manufacturing hubs, whether any specific areas have been identified for the same, if so, State-wise details of such areas including in the state of Rajasthan;
- (c) whether the Government is collaborating with any industrial bodies and Institutes of National Importance to develop a body of expertise to become a global leader in semiconductor chip industry, if so, details of such collaborations; and
- (d) whether the government is considering any incentive based scheme to promote the expertise and industry knowledge of assembly and testing of chips in India or any other collaboration with foreign countries or Institutes of National Importance towards the same objective and if so, the details thereof?

ANSWER

MINISTER OF STATE FOR ELECTRONICS AND INFORMATION TECHNOLOGY
(SHRI RAJEEV CHANDRASEKHAR)

(a): Government is fully cognizant of the importance of semiconductor design and manufacturing for India to become an electronics manufacturing hub of the world in the post-covid scenario. It has been making serious efforts to promote semiconductor design and also to set up Semiconductor wafer fabrication facilities in the country.

Semiconductor wafer fabrication facilities are currently available in India in limited capacities for strategic applications at Semi-Conductor Laboratory (SCL) Mohali, Gallium Arsenide Enabling Technology Centre (GAETEC), Hyderabad and Society for Integrated Circuit Technology and Applied Research (SITAR), Bengaluru.

Semiconductor FABs are highly capital intensive and resource intensive, and are at the cutting edge of manufacturing with rapidly changing technology cycles. Further, the semiconductor fabrication capability for leading / cutting edge technology nodes is available with only few companies globally.

Government has approved the following projects in the area of semiconductors:

- I. The project for “Establishment of Gallium Nitride (GaN) Ecosystem Enabling Centre and Incubator for High Power and High Frequency Electronics” to be implemented by Society for Innovation and Development (SID), under the auspices of Indian Institute of Science (IISc) at Centre for Nano Science and Engineering (CeNSE), Bengaluru at the total project cost of Rs. 298.66 crore.
- II. An application for setting up of Assembly, Testing, Marking and Packaging (ATMP) of NAND Flash memory has been approved under the Production Linked Incentive (PLI) Scheme for large scale electronics manufacturing.
- III. An application for discrete semiconductor devices, including transistors, diodes, thyristors, etc. and System in Package (SIP) has been approved under the Production Linked Incentive (PLI) Scheme for large scale electronics manufacturing.
- IV. Following incentives are available to companies for setting up of Semiconductor Fabrication (FAB) facilities in India:
 - (i) A financial incentive of 25% on capital expenditure for setting up of semiconductor fabrication units under the Scheme for Promotion of manufacturing of Electronic Components and Semiconductors (SPECS). The capital expenditure inter-alia includes R&D expenditures subject to a ceiling of 20% of the total capital expenditure.
 - (ii) Capital goods for setting up of Semiconductor FAB are exempted from Basic Customs Duty (BCD).
 - (iii) Investment linked deduction under Section 35AD of the Income-tax Act.
 - (iv) Deduction of expenditure on research and development as admissible under Section 35(2AB) of the Income-tax Act.
 - (v) New domestic companies making fresh investment in manufacturing and starting operations before March 31, 2023 have an option to pay corporate income tax at reduced rate of 15%. Such companies will also not be liable to pay Minimum Alternate Tax (MAT).

(b): States like Karnataka, Telangana, Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Odisha, Tripura and UT of Dadra and Nagar Haveli and Daman & Diu have shown interest in facilitating setting up of semiconductor chip manufacturing facilities. These states have also indicated the availability of stable power supply and sufficient water supply for chip manufacturing facilities. However, the decision regarding the location of chip manufacturing facility lies with companies proposing to setup such facilities based on various other parameters including availability of stable power supply and sufficient water supply.

(c): Ministry of Electronics and Information Technology (MeitY), Government of India engages with many industry bodies and Institute of National Importance on a regular basis in order to promote the holistic ecosystem of electronics manufacturing in India including semiconductors. Some such collaborations of Ministry of Electronics and Information Technology include the following:

- i. Fabless Chip Design Incubator (FabCI) at Indian Institute of Technology, Hyderabad.

- ii. Gallium Nitride (GaN) Ecosystem Enabling Centre and Incubator for High Power and High Frequency Electronics at Centre for Nano Science and Engineering (CeNSE), Indian Institute of Science (IISc) Bengaluru
- iii. Microprocessor Development Programme with various Institutes of Higher Education
- iv. National Centre of Excellence for Next Generation AMOLED Displays, OLED Lighting and OPV Products at IIT-Madras
- v. National Centre of Excellence in Large Area Flexible Electronics (NCFLEX) at IIT-Kanpur
- vi. National Centre of Excellence for Technology on Internal Security (NCETIS) at IIT-Bombay
- vii. Centre on Excellence (CoE) on Medical Electronics and Bio-Physics set up at Andhra Pradesh MedTech Zone (AMTZ)
- viii. Various state-of-the-art ASICs / SoCs such as indigenous Microprocessors, NavIC Receiver, Bluetooth Transceiver, etc., have been designed and developed for societal and strategic applications. Under the Microprocessor Development Programme, a family of 32-bit / 64-bit SHAKTI, VEGA and AJIT processors have been designed and developed by IIT Madras, C-DAC and IIT Bombay, respectively, using Open Source ISA (Instruction Set Architecture).

Further, Government is open for any technological & financial collaborations and investments that would help India in developing semiconductor chip manufacturing ecosystem.

(d): Following incentive based schemes of Government of India promote the expertise and industry knowledge of Assembly, Testing, Marking and Packaging of semiconductor chips in the country:

- i. The Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECES) provides financial incentive of 25% on capital expenditure for the electronic components, semiconductor/ display fabrication units, Assembly, Testing, Marking and Packaging (ATMP) units, specialized sub-assemblies and capital goods for manufacture of aforesaid goods.
- ii. Production Linked Incentive Scheme (PLI) for Large Scale Electronics Manufacturing Round 1 and Round 2 offered a production linked incentive to boost domestic manufacturing and attract large investments in mobile phone manufacturing and specified electronic components, including Assembly, Testing, Marking and Packaging (ATMP) units.
