

GOVERNMENT OF INDIA
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
RAJYA SABHA
STARRED QUESTION NO. *66
TO BE ANSWERED ON: 03.12.2021

MANUFACTURING OF SEMICONDUCTORS IN THE COUNTRY

***66. SHRI K.J. ALPHONS:**

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

- (a) the steps that have been taken by Government to design semiconductors in the country;
- (b) the budget allocation in the current year's budget for the above;
- (c) the steps that are envisaged for setting up Semiconductor Fabrication (FAB) facilities for manufacturing adequate amount of semiconductors in the country; and
- (d) whether Government is aware that setting up of such facilities is critical for AtmaNirbhar Bharat?

ANSWER

MINISTER FOR ELECTRONICS AND INFORMATION TECHNOLOGY
(SHRI ASHWINI VAISHNAV)

(a) to (d): A Statement is laid on the Table of the House.

**STATEMENT REFERRED TO IN REPLY TO RAJYA SABHA
STARRED QUESTION NO *66 FOR 03.12.2021 REGARDING
MANUFACTURING OF SEMICONDUCTORS IN THE COUNTRY**

(a): Government is fully cognizant of the importance of semiconductor design and manufacturing for India becoming an electronics manufacturing hub of the world in the post-covid scenario. Semiconductor design is a highly knowledge intensive field and needs exceptionally skilled manpower and tools. India has availability of huge talent pool for semiconductor design and high number of design Patents / IPR are produced in the country by design engineers. A vibrant design ecosystem in the country will lay the foundation for the development of indigenous chipsets, systems, and electronic products. This is an important step towards meeting India's future requirements in the strategic, industrial, and commercial sectors where the electronic content is rising steadily.

Government is focused on broadening and deepening the Electronics System Design and Manufacturing (ESDM) sector with Semiconductor design as one of the focus areas.

The major on-going initiatives in the area of design of Semiconductors are:

- i. Special Manpower Development Programme for Chips to System Design (SMDP-C2SD) was initiated by Ministry of Electronics and Information Technology (MeitY) in year 2014 at 60 academic institutes across the country with an outlay of Rs. 99.72 crore for duration of 7 years. 150

Application Specific Integrated Circuits (ASICs) have been designed under this programme which are fabricated at Semi-Conductor Laboratory (SCL) and other foundries abroad.

ii. MeitY also supports projects at various R&D organizations for incubation as well as design & development of ASICs / System-on-Chips (SoCs) for societal and strategic applications. Following are the major activities taken up for chip design:

a. 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).

b. Fabless Chip Design Incubator (FabCI) has also been setup by MeitY at IIT Hyderabad in year 2016 with an outlay of Rs. 23.73 crore for duration of 5 years for providing design infrastructure, incubation support and technical mentorship to semiconductor design start-ups.

(b): The total budget allocation for chip design related activities / programmes in the current financial year is Rs. 100 crore.

(c): Government is cognizant of the importance of semiconductor manufacturing for AtmaNirbhar Bharat and it has been making serious efforts to set up semiconductor wafer fabrication facilities in the country. Currently, semiconductor wafer fabrication facilities for strategic requirements are available 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 must deal with constantly changing technology. Further, the semiconductor fabrication capability for leading / cutting edge technology nodes is available with only few companies globally.

The Government has approved the following projects for development of semiconductors:

- I. The project for “Establishment of Gallium Nitride (GaN) Ecosystem Enabling Centre and Incubator for High Power and High Frequency Electronics” is being 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).

- (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%.

(d): Yes, Sir. Government is very aware that building a robust and innovative semiconductor ecosystem in the country is critical for becoming a global electronics manufacturing hub and for AtmaNirbhar Bharat.

भारत सरकार
इलेक्ट्रॉनिकी और सूचना प्रौद्योगिकी मंत्रालय
राज्य सभा
तारांकित प्रश्न संख्या *66
जिसका उत्तर 03 दिसम्बर, 2021 को दिया जाना है।
12 अग्रहायण, 1943 (शक)

देश में अर्धचालकों (सेमीकंडक्टर) का विनिर्माण किया जाना

***66. श्री के. जे. एल्फोंस :**

क्या इलेक्ट्रॉनिकी और सूचना प्रौद्योगिकी मंत्री यह बताने की कृपा करेंगे कि:

- (क) देश में अर्धचालकों का विनिर्माण करने के लिए सरकार द्वारा क्या कदम उठाए गए हैं;
- (ख) उपर्युक्त कार्य के लिए चालू वर्ष के बजट में कितना बजटीय आवंटन किया गया है;
- (ग) देश में अर्धचालकों के पर्याप्त संख्या में विनिर्माण के लिए अर्धचालक विनिर्माण (एफएबी) सुविधा केंद्रों की स्थापना हेतु क्या कदम उठाने पर विचार किया जा रहा है; और
- (घ) क्या सरकार को इस बात की जानकारी है कि ऐसे सुविधा केंद्रों की स्थापना आत्मनिर्भर भारत अभियान के लिए महत्वपूर्ण है?

उत्तर

इलेक्ट्रॉनिकी और सूचना प्रौद्योगिकी मंत्री (श्री अश्विनी वैष्णव)

(क) से (घ) : एक विवरण-पत्र सभा पटल पर रख दिया गया है।

देश में अर्धचालकों (सेमीकंडक्टर) का विनिर्माण किए जाने के संबंध में दिनांक
03.12.2021 को
राज्य सभा में पूछे गए तारांकित प्रश्न सं. *66 के उत्तर में उल्लिखित विवरण-पत्र

(क) : (ख), (ग) और (घ) (ड.) :

SHRI K.J. ALPHONS: Sir, under Prime Minister Narendra Modi *ji*, the biggest digital revolution in the world has happened here. Chips or semiconductors are at the heart of the electronics industry and the internet industry. We have not succeeded, I am using a very mild word, at all, in chip manufacturing. While designing of semiconductors by Indian engineers happens in Bangalore, mostly those are for foreign companies. Sir, what is the Government doing? I have gone through the replies. All these Government companies are doing very little in this. Unless we can really manufacture chips in the country...*(Interruptions)*...

MR. DEPUTY CHAIRMAN: Please put your question.

SHRI K.J. ALPHONS: Sir, it is a question. We have two brilliant minds in the Ministry. Both are engineers. Both are brilliant people. Will they take radical steps to ensure that whatever semiconductors are required in India are manufactured in India in the next three years?

SHRI ASHWINI VAISHNAW: Sir, the hon. Member, Shri Alphons, has raised a very valid point. Semiconductor industry is a very complex industry. It is highly capital intensive industry. The steps taken by the Government have given very good results so far. Are we there? Do we need to do more? Yes, definitely, we need to do a lot more. That is what the hon. Member is saying. What are we doing on that? We have had very detailed interaction with all the stakeholders in this industry. This industry has five major stakeholders. They are the fab companies, composite semiconductor manufacturers, the entire supply chain which has very specialized gases and chemicals, then the design people -- there is an entire ecosystem of design people -- and then the packaging people. We have touched all of them. We have had very detailed discussion with all these stakeholders and are working out whether we have sufficient schemes that we have now, or whether we need to change them. As we know, Sir, every five years, the scheme period gets revised. So, when that moment to change comes, we have to bring in new elements. That is the process in which we are right now. I hope this will lead to some very good results.

MR. DEPUTY CHAIRMAN: Second supplementary now, but please be brief.

SHRI K.J. ALPHONS: Sir, this is the most important issue for the country. So, please give me a few seconds. This is not a routine thing. The future of the entire country depends on semiconductors and chips. So, please give me time.

Sir, what is provided in the Budget is only Rs.100 crore. Basically and fundamentally, our Government PSUs have failed. I am very sorry to say that. We need to involve the private sector. We must at least pick up three or four private sector players and give them at least a billion dollars each. I am sorry that you have provided only Rs.100 crore in the Budget for current year. Will you do that? Will you provide at least three billion dollars allocation in the Budget and give it to the private industry?

MR. DEPUTY CHAIRMAN: This is a suggestion. I hope the hon. Minister will keep in mind.

SHRI ASHWINI VAISHNAW: Sir, I would also like to mention that semiconductor industry is part of electronics manufacturing ecosystem. Ten years back, this kind of ecosystem was hardly present in the country. A lot of efforts have been made and all have contributed. Today, the electronics manufacturing industry has reached 75 billion dollars, which means, five-and-a-half lakh crore of rupees. This industry is growing at a pace; there is a growth rate of 25-26 per cent. We expect that in the coming five years, this industry will grow to 250 billion dollars. यह इंडस्ट्री 18 लाख करोड़ रुपए की बनेगी। That is the kind of growth which is happening. What is most interesting and most heartening for every citizen and every hon. Member is that there are so many units which are employing a large number of women and a very large of physically disabled friends in the society. That gives a tremendous and heartening feeling to all of us. That is the direction in which this industry is growing.

SHRI K.J. ALPHONS: Sir, I am talking about allocation for semiconductors.

SHRI ASHWINI VAISHNAW: Electronics and semiconductors cannot be discussed separately. Whatever discussions we are having with the industry at this point of time will definitely lead to some good results.

SHRI K.R.N. RAJESHKUMAR: Respected Deputy Chairman, Sir, the Centre for Development of Advanced Computing comes under the Ministry of Electronics and Information Technology. The Central Government closed down C-DAC computer centre for training programmes. Does the Central Government have any proposal to restart the training programme?

SHRI ASHWINI VAISHNAW: Sir, the question is not related to the main question, however, hon. Member can any day come over to the Ministry. We can have a discussion on this.

PROF. MANOJ KUMAR JHA: Sir, when I look at semiconductor fabrication facilities, do States like us come in your main vision or not? Leaving aside Bihar, you go to those places which already have these kinds of facilities. I have this small query on behalf of people of Bihar.

SHRI ASHWINI VAISHNAW: Sir, I request hon. Member to work with the State Government because this is a very, very complex ecosystem. This requires so many elements that it is not possible for any Government to direct the industry towards a particular State.

MR. DEPUTY CHAIRMAN: Question Hour is over. Hon. Minister, thank you. The House stands adjourned till 2:30 p.m.