

==>Insights :

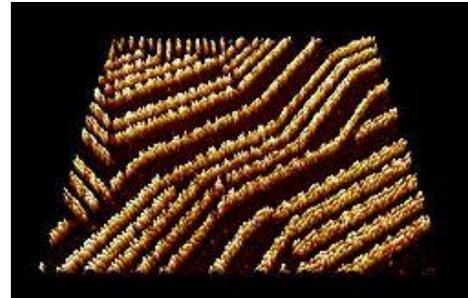
## 1. Self assembling materials in the next computer chips?

- With a challenge to Moore's Law, the current technology of creating communications between devices by means of electrons is becoming difficult to sustain. With such constriction researchers are coming up with a new type of materials known as nano materials – which includes metals, ceramics, polymeric or composite materials. Their contention is that it will be possible to have circuits that are of scale of individual molecules, which can be organized from bottom up rather than top down approach.

- The semiconductor designers have come up with chemical processes that can make self assemble circuits by causing the materials to form patterns of ultrathin wires on semiconductor wafer. This is an alternative of the other technology wherein scientists use photons to replace electrons in circuit.

- According to Gartner report- the cost of making microprocessor chips would cost from \$8 to \$10 billion, which would rise to between \$15 and \$20 billion by the end of this decade, equivalent to the GDP of a small nation.

- The scientists at SLAC national Accelerator Laboratory in November, described about a new form of tin which was only a single molecule thick and was able to conduct electricity with 100 percent efficiency at room temperature. Until now this sort of efficiencies were only possible for superconductors and that also for temperatures near absolute zero.



**Fig: STM image of self-assembled supramolecular chains of the organic semiconductor Quinacridone on Graphite.**  
(image courtesy: [Wikipedia.com](http://Wikipedia.com))



**Fig: Nautilus Shell as an biological example of self assembling entity**  
(image courtesy: [Wikipedia.com](http://Wikipedia.com))

Ref: [Self Assembly materials](#)

==> Technology:

## 1. Will online games be the next learning platform after TED-Ed educational videos?

- A lot would be known to people in the field of education about TED-Ed educational videos placed on Youtube. In a new way to revolutionize the learning platform, game developers have come up with games from which they invite games to solve few of the challenging mathematical and biological challenges that even scientist are facing difficulty to solve. The good part about this is that the gamers are able to solve these challenges!



**Fig: Foldit**  
(image courtesy: [Wikipedia.com](http://Wikipedia.com))



**Fig: Candy Crush**  
(image courtesy: [flickr.com](https://www.flickr.com/photos/148111111/148111111/))

- An example to this would be a game known as ["Foldit"](#) and online puzzle game about protein folding. Researchers had been working on the problem of understanding the structure of an enzyme that cause AIDS-like disease in monkeys for past 13 years, which was solved by one of the gamer.

Then there are people playing astronomy game called [Planet Hunters](#) who found curious planet with four stars in its system and till now they have discovered around 40 planets which may potentially support life, which had been missed by professional astronauts. Moreover with game like [Candy Crush](#) which is a pattern spotting game and eventually finding solutions of the problem dealing with cancer, Alzheimer's disease and diabetes.

There are other beautiful and learning gaming platform like [Phylo](#), [Forgotten Island](#), [EteRNA](#), [Ora](#), [Galaxy Zoo](#), [Eyewire](#), [Whale FM](#) and [Cropland culture](#)

Ref: [Online gaming and learning](#)

**==> Business:**

## 1. The future of Electronic system design & manufacturing sector in India?

- The ESDM is forecasted to generate cumulative revenue of Rs. 18,800 crore in just Odisha by 2024 as per the estimates of India Electronics & Semiconductor Association (IESA). Though an investment of Rs. 7340 crore is required to realise the projected revenue.

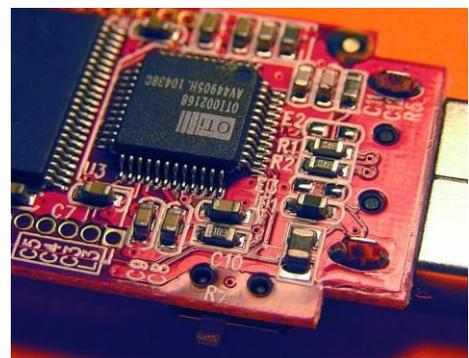
The plan is categories in the following phases:

Phase 1 (2016-18) can start with system integration and assembly of low complexity products and components.

In Phase-2 (2019-21), the manufacturing activities would get deeper into CKD (completely knocked down) assembly, component manufacturing and manufacture of products with medium to high complexity.

The focus in Phase 3 (2022-24) can be on products that are complex or require a mature ecosystem, and require good talent availability and large investment.

Ref: [The future of ESDM in India](#), [IESA Report](#)



**Fig: Surface mounted chip**

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