

Dr Paramesh Gopi



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Q. What are the top 3 innovative trends Applied Micro sees in ESDM technology?

A. Consumerization and Social Media driving the electronics industry. The growing use of video, the explosion of Internet connections and the number of connected devices, spiralling bandwidth requirements and increased use of social media applications are all contributing to the rise of the cloud computing as applications become more data intensive and less compute intensive.

The traditional data center needs remain the same as before but the move to cloud is driving a consolidation of even traditional data centers to captive clouds. This changes the technology requirements for computing servers as well as brings about a massive change in the connectivity infrastructure. For example, where the market took a decade to switch from 1G to 10G bandwidth on the connectivity side, it has taken roughly only two years to move from 10G to 40G and it appears that 40G deployment may be very short lived as 100G solutions are already under late stage development.

Power efficiency is not merely a green initiative any more; it impacts the bottom line of businesses directly. Hence upfront awareness and analysis of total cost of ownership (TCO) drives technology solutions.

At Applied Micro we see these trends as the primary engine of growth for the company. By designing devices that deliver the compute performance to meet today's data center needs with dramatically lower power consumption, we will dramatically lower TCO.

Q. What part does India play in the overall technology strategy and marketing strategy of Applied Micro.

A. AppliedMicro's two design centers in India play a significant role in the company's overall technology strategy. As a semiconductor company, our centers in Pune and now in Bangalore offer full design, verification and validation capabilities for our computing and connectivity chips. This is one of the most important aspects of getting leading-edge designs out into a competitive market. If we misstep in this process, we stand to offer our competitors an open door. We are expanding in Bangalore partially because of increased demand for our products, but mostly because our design center in Pune has proven that we can assemble a team of engineers to realize our state of the art products that allows us to compete globally.

Further, with several of our global & local customers having R&D and systems development presence in Bangalore it allows us to work closely with them to enable design-in and bring-up of their products with our chips.

Q. With the Government of India giving complete support to the manufacturing ecosystem, in terms of various policies, what is the stand taken by Applied Micro

A. The Government of India has been working closely with the industry and the IESA to formulate policies to give an impetus to the manufacturing ecosystem in India. Given the critical impact of ESDM in India it would be foolhardy to ignore it. At the same time, we need to recognize that success in manufacturing requires a lot of things to come together - infrastructure, raw materials, transportation, skilled labour and favourable tax policies. The government has a huge role to play in influencing all of these. In the end, the perception about India as a manufacturing destination would need to change just like it did for software and electronic design years back. Applied Micro is very happy to work with industry bodies like the IESA and the various governmental departments to help bring about this change.

As a fabless semiconductor company, our core output is semiconductor and electronic design and we are expanding our operations here in India to do that. As this process evolves, our local presence strengthens the manufacturing ecosystem. Today, just like the rest of our industry, our products are manufactured in the far east, far from where we do our designs. If

additional competitive options are available to us, for example in India, we will be happy to consider those; and so would the rest of the fabless industry.

Q. What are the critical challenges facing companies looking to develop or expand existing semiconductor companies' operations in India?

A. The challenges in India are much the same as all over the world where semiconductor operations take place: How do you hire the most talented engineers for your team and retain them for the long-term? We feel AppliedMicro was quite successful in doing so in Pune and that is why we are opening up our new center in Bangalore. Now that more and more international corporations have discovered India and its rich pool of engineering talent, it has become a lot more competitive. But the favorable assets that India's engineers bring to the table still make it favorable to establish roots here and compete for talent.

Q. How do you place the competency of Indian product companies as compared with MNCs?

A. India's highly educated and industrious work force, and positive business climate have contributed greatly to the emergence the country's output. However, while India has produced great thinkers, philosophers and scientists who have contributed to the progress of the whole human race, "product" orientation has never been a focus of the people and the country in the past. Globalization has brought the realization about how important "product" focus is in today's world. And businesses and entrepreneurs in India are starting to create products that the markets would accept. It might take some time for successes to emerge but the education, intelligence, focus and persistence would pay off; it always does.

Q. What would be the key market drivers in 2012?

A. As a company we see a tectonic shift taking place in the computing infrastructure as we know it. This is akin to the major shifts that happened earlier, only perhaps much bigger. We moved from mainframe based computing to department level servers, and then to powerful desktop workstations. Then, with the introduction of PCs, computing came into the homes of people from being exclusively in the business offices. With the Internet and mobile phone, it has now moved into the pockets of the masses. As can be seen, the edge of inclusion moved from business to the home and now to the individual. It was only a matter of time that the explosion of applications like social media happened. The computing infrastructure to support this explosive growth efficiently is now rapidly evolving.

Cloud Computing data centers, explosive growth of video and social media applications, spiralling demand for network bandwidth, the drive toward lower-power to reduce total cost of ownership are all key drivers.

Q. How do you see the Indian engineering education scenario? What do you think are its strengths?

A. We see legions of highly talented engineers graduating from Indian Universities who come to work for us and produce world-class results. The "application" orientation of fresh graduates could be better but we see that the industry, academia and government are aware of this and are taking steps to best address it. Wasn't it one of the first focus areas taken up by IESA when it was founded?

Q. How does your company plan to leverage the unique needs of India in the various market verticals?

A. As a fabless semiconductor company Applied Micro creates chips in the computing and connectivity domains. These chips are implemented by our customers in their systems products which are then sold and deployed all over the world including India. It would not be immodest to say that we are already a critical part of India's telecom and Internet backbone infrastructure through our customers' products, for example.

As we work with our customers in India we realize that they see some unique needs in India that they need to address with their systems products. And several of these companies, including MNCs, have ramped up their Indian presence to define and develop these products from their development centers in India. We are closely working with them to create products that will satisfy the unique needs of India.

Q. How is the regulatory environment in India impacting the Indian semiconductor industry?

A. The regulatory environment is allowing the Indian semiconductor company to grow at a healthy rate from the AppliedMicro perspective. China is emerging as a significant player in this industry but our company keeps coming back to

India to expand because we find the work force highly motivated and highly educated. The regulatory environment has not caused us to alter our expansion efforts.

Q. How does Applied Micro connect Cloud to ESDM industry in India.

A. The major growth in information technology industry is shifting from compute intensive applications to unstructured data and even more social networking based applications. The cloud computing model is emerging as a result of these trends. With the rapid consumerisation of computing, there is a huge opportunity to create applications to address the varied needs of the individual consumers. It presents a huge opportunity to both software and hardware developers in India to create solutions for the Cloud market. Being locally present, the local creators are best placed to understand the needs and define and develop these solutions, not just for direct use by the consumer but also for the backbone Cloud infrastructure required to support it. Applied Micro's local presence in India is critical for the same reasons.

The ESDM industry is naturally aligned with the cloud computing model and it will thrive as the cloud becomes more pervasive in everyday use.