

INDIA SEMICONDUCTOR AND EMBEDDED DESIGN MARKET (2007-2010)

Market, Technology and Ecosystem Analysis

EXECUTIVE SUMMARY

ISA-IDC REPORT
2008



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MARKET, TECHNOLOGY AND ECOSYSTEM ANALYSIS

Embedded electronics is becoming pervasive, whether it is in the form of consumer devices, handheld and multimedia devices, automotive or medical devices. The convergence of ICE (Information, Communication and Entertainment) that started few years back has gained momentum. This has led to paradigm shift in devices from fixed function to multifunction with more features at incremental costs.

In this backdrop, product companies are striving to maintain their competitive edge in the market while newer entrants want to create differentiation in their products. Hence, the markets in reference are faced with challenges, which include lower design and production costs, faster time-to-market, and multiple product models with rapid innovation.

The above forces have created a strong focus on the semiconductor and embedded design separately within the electronics design and development value chain. The Indian semiconductor and embedded design industry has come of age and is of a significant size. The presence of multinational companies, growth of Indian services companies, establishment of product design centers and a huge domestic market have together created an interesting ecosystem. Companies in India have moved up the value chain from mere project execution to end-to-end development of products. This report attempts to map the market for VLSI, hardware/board design and embedded software industry and the market dynamics between the members of the ecosystem.

India Semiconductor and Embedded Design Market Snapshot

- ▶▶ The total design market in India for 2007 was estimated at US\$ 6 billion.
- ▶▶ The total workforce employed in the design services industry in India was estimated at 130,000 in 2007.
- ▶▶ Total VLSI design services market was estimated at US\$ 766.2 million in 2007 and employed around 13,900. VLSI design services contributed approximately 13% to overall revenues and 11% to overall workforce.
- ▶▶ Total hardware/board design services market was estimated at US\$ 386.1 million in 2007 and employed around 9400. Hardware/board design services contributed approximately 6% to overall revenues and 7% to overall workforce.
- ▶▶ Total embedded software market was estimated at US\$ 4.9 billion in 2007 and employed 106,600. Embedded software contributed approximately 81% to overall revenues and 82% to overall workforce.
- ▶▶ Per engineering man- month rates for 2007 were estimated at US\$ 4562, \$3415, and \$3854 for VLSI, hardware/board design and embedded software respectively.
- ▶▶ Out of the total Digital VLSI design projects undertaken in India approximately 9% were on 60 and 45 nm.

Key factors that have positioned India as a favored destination for semiconductor and embedded design are:

- ▶▶ Growing expertise and capabilities in end-to-end design
- ▶▶ IP development steadily gaining traction
- ▶▶ A strong pool of experienced engineers as well as emerging and talented fresh engineers.
- ▶▶ Decade long success stories of world-class captive centers in India.
- ▶▶ Emergence of the outsourced third party design services companies.
- ▶▶ Cost effectiveness as compared to Western Europe or North America
- ▶▶ A fast growing economy and huge domestic market coupled with accessibility to other Asian markets.

Embedded design and development has been strength of Indian software firms that provide third party design and development services to product vendors.

Conclusion

- ▶▶ India as the preferred destination of choice for companies for embedded design and development will continue.
- ▶▶ The total design services market is expected to grow at a CAGR of 21.7% to US\$ 10.96 billion in 2010.
- ▶▶ The total workforce in this industry will grow from 129,900 in 2007 to 218,800 thousand in 2010, at a CAGR of 18.8%.
- ▶▶ There will be an increased emphasis on IP development, as third party design services companies look to move up the value chain
- ▶▶ The industry will continue to face significant challenge to manage the demand and workforce churn. The industry will have to constantly evolve, upgrade and innovate while keeping the costs down in order to stay cost competitive in the global market.
- ▶▶ Localization of product design and manufacturing from India will drive significant investments by product and design services companies leading to a further fueling of growth for this industry.
- ▶▶ Future trends of this industry will also witness increasing proximity between the third party service providers and OEMs for end-to-end product design. This will also lead to fabs aligning themselves with the service providers leading to the creation of "Virtual Fabs".