

## India Research Topical Report

## Opportunities Loom Ahead for India's IC Design Industry

By Jagdish Rebello, PhD., Senior Director &amp; Principal Analyst

**Forecast****Frequency, Time Period**

- 3-year historical + 5-year annual forecasts

**Measures**

- Revenue

**Regions, Markets**

- India

**Detail Level**

- Independent Design houses, captive design centers

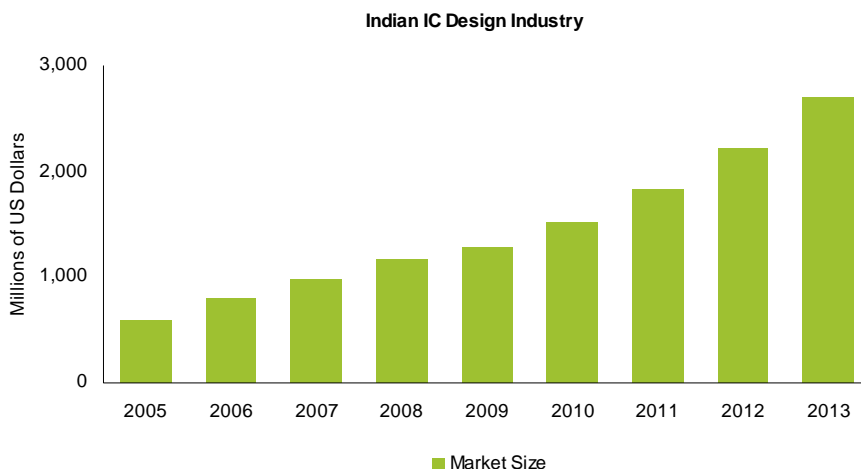
**Applications/Products Covered**

- Semiconductor Design
- Design and IP vendors

The role of Indian design firms in global design activities is gaining strategic importance, consequently helping the industry to also move up the value chain. Although the number of projects and employee utilization dropped earlier in 2009, new opportunities brought forth by the global recession coupled with the unique enablers prevailing in the Indian semiconductor ecosystem are expected to help the industry withstand the global recession.

Independent Design Houses (IDHs) in India are now starting to move up the value chain while striving to establish a proven track record of solving complex design problems. With a booming domestic market, the demand for IC designs catering to the Indian market is increasing. However, the India IDH industry continues to face challenges including the shortage of engineers, escalating salaries and rising attrition. And with semiconductor manufacturing in India being almost non-existent, the Indian industry also faces increased competition from other design destinations such as eastern Europe, the Middle East, China, and Israel.

As the India semiconductor design industry seeks to move from cost arbitrage to value arbitrage to win turnkey design projects, the iSuppli study on the India semiconductor industry helps you understand the challenges and the competitive landscape of semiconductor design in India to realize the full potential of off-shoring or outsourcing semiconductor design to India.

**Key Issues Addressed:**

- What is the current and forecasted market size for the Indian semiconductor design industry? What are the key growth drivers?
- Who are the key Independent Design players in the India IC design industry? What design activities are these companies focused on?
- Who are the key customers for India's IDH industry?
- What are the critical challenges facing companies looking to develop or expand existing semiconductor design operations in India?
- How is the regulatory environment in India impacting the India semiconductor design industry?

**Applicable To:**

- Semiconductor Manufacturers
  - Chief Technology Officers
  - Product Managers
  - Marketing Managers
  - R&D Managers
- Semiconductor Design
  - Chief Technology Officers
  - R&D Managers
- Electronics Manufacturers
  - Purchasing

**Lead Analyst****Jagdish Rebello, Ph.D.,  
Senior Director & Principal Analyst**

Jagdish is responsible for research and competitive analysis of various optical and opto-electronic components, wireless infrastructure and applications in optical networking communications. He also provides insights into emerging optical and wireless technologies such as Passive Optical Networks and WiMAX, while assessing their market impact.

Jagdish Rebello also directs the iSuppli India research initiative and analyzes the rapidly growing demand for consumer, automotive and wireless electronics in India as well as the emerging supply of electronic design and integration capabilities in India.

Prior to iSuppli, Jagdish worked with ADC Tele-communications as a Product Manager for several photonic components, directing the strategic and tactical marketing of MEMS switches, FBGs, optical couplers and WDMs - all specific to the telecommunications market.

Jagdish also successfully managed the optical spectroscopic detector line for Jobin Yvon, Inc. Jagdish has a PhD and MS in mechanical engineering from Ohio State University, an MBA in finance and marketing from Rutgers University, and a BS in mechanical engineering from the University of Bombay.

**Table of Contents**

## Executive Summary

## IC Design Industry – Indian Scenario Assessment

- Effect of the global slowdown to the Indian IC design industry:
- Attractiveness of Key Regions for Off-shoring IC Design: A Comparative Analysis

## Indian Integrated Chip (IC) Design Industry

- Introduction to IC Design Companies
- Market Estimates for the IC Design Industry
- Market Estimates Based on User Application Areas
- The Nature of IC Design Activities – By Technology
- The Nature of IC Design Activities – By Process Nodes
- Types of Industry Players
- Trends in the Indian IC Design Industry

## Support Services to the Indian IC Design Industry

- Embedded Software
- Electronic Design Automation (EDA)

## Manpower Status in India

- IC Design Engineers in the Industry
- Manpower by Experience
- Manpower by Education
- Talent Availability Issues in India
- Efforts to Increase Manpower Quality and Supply
- Semiconductor Manufacturing the Missing Link
- Company Activities

## Future Roadmap for the Growth of the Indian IC Design Industry

- Regulatory Environment in India
- Regulatory and Taxation Framework
- National Semiconductor Policy
- Government Initiatives
- Regulatory Initiatives
- Other Initiatives

## Company Profiles

- Indian Players – Detailed Profiles
- Other Indian Design Players – Snapshot
- Captive Centers – Snapshot

**Figures**

## Indian IC Design Industry Ecosystem Market Share – Captive and

Independent Design Centers, 2008

## Indian IC Design Industry, 2005-2013

Design Activities by Application Areas - By Revenues, 2008

Percentage of Design Starts – ASIC/ASSP, Structured ASIC, Full Custom ASIC, 2008

Percentage of Design Starts – ASIC/ASSP, Structured ASIC, Full Custom ASIC, 2013

Types of Chips – Analog, Digital and Mixed Signal

Design Activities across Various Process Nodes, 2008

Design Activities across Various Process Nodes, 2013

Revenues of Independent IC Design Services Firms

Spread of Work Performed by Design Service Vendors in India

Business Models Adopted by DS Firms

Workforce Hierarchy Maintained by Small DS Firms

Workforce Hierarchy Maintained by Integrated DS Firms

Indian IC Design Industry– Revenues and Number of Engineers, 2001-2008

Indian IC Design Industry– Revenues and Number of Engineers, 2008-2013

Indian IC Design Industry – Yearly Additions of Professionals in VLSI Design, 2008-2013

Indian IC Design Industry – Workforce by Experience, 2008-2013

Indian IC Design Industry – Workforce by Education, 2008

Indian Semiconductor Ecosystem, 2008

Typical maturity curve for a Manufacturing start up

Wipro - Split of Manpower Working at Different Technologies

Wipro - Split of Design Activities by Process Nodes

MindTree – Split of Manpower by Experience

Mindtree – Split of Design Activities by Process Nodes

**Tables**

Comparison of Upcoming Off-shoring Destinations

Segmentation of Independent Design Service Providers

Indian IC Design Industry, 2005-2013

Major Application Areas and Products

Major 65-nm Activities in India

Growing Share of Independent IC Design Services Firms

Services Offered by Design Services Firms

DS Firms Working on the Time and Material Model

DS Firms providing end-to-end Design Services

**Table of Contents (continued)**

DS Firms Adopting the IP Licensing Mode  
Activities of Captive Centers of Top Semiconductor Companies  
Major European Semiconductor Companies in India  
Some of the Top 10 Global Fabless Companies in India, 2008  
Key M&A in Indian Semiconductor Industry, 2007-2009  
Manpower – Revenue Dynamics in the Indian IC Design Industry, 2001-2008  
Indian IC Design Industry– Revenues and Number of Engineers, 2008-2013  
Indian IC Design Industry – Yearly Additions of VLSI Engineers, 2008-2013  
Indian IC Design Industry – Workforce by Experience, 2008  
Indian IC Design Industry – Workforce by Experience, 2013  
Manpower Development - SMDP  
Institutes Offering Courses in VLSI Design  
India's Semiconductor Electronics Centers  
Tax structure for Resident and Non-Resident Indian Companies  
List of products  
WIPRO Technologies  
WIPRO Technologies' Services Portfolio  
Mindtree Consulting PVT. LTD.  
eINFOCHIPS  
eINFOCHIPS' Services Portfolio  
Moschip Semiconductor Technology Limited  
Moschip's Services Portfolio  
Sasken Communication Technologies Ltd.  
inSilica  
Qualcore Logic  
Open Silicon  
KPIT Cummins Infosystems Ltd.  
Ittiam  
Ammos Software  
Procsys Pvt Ltd.  
Tata Elxsi Ltd.  
Intel Technology India Pvt., Ltd.  
Advanced Micro Devices (AMD)  
Texas Instruments India  
STMicroelectronics  
Freescale