

ISA - FROST & SULLIVAN 2009 - 11

India Semiconductor Market Update

The ISA-Frost & Sullivan Report provides market estimation and forecasts for the different semiconductor product markets in India till 2011. It highlights growth areas for the period 2009 - 2011. The first ISA-F&S report was released in 2006. This is the third update. It is a credible analysis that is used by industry and government in its planning process.

The application segments studied include:

- Telecommunications
- Wireless handsets
- IT & Office Automation
- Consumer electronics
- Industrial electronics
- Automotive electronics
- Others (Aerospace, Defense, Medical electronics and Smart cards)

Executive Summary

The key findings from the report released today are given below:

- India semiconductor market grew 15.6% in 2009 in contrast to the global market that shrunk by 11% from 2008.
- Semiconductor TAM revenue growth forecast of 34.8% from 2009 to 2011 reflects the rapid growth of manufacturing index of electronic products in the country.
- Wireless Handsets, 3G networks, WiMAX, Notebooks, Set-Top-Boxes and Smart Cards to primarily drive the semiconductor market in India.
- Telecommunications infrastructure development related domestic semiconductor consumption to grow by a massive 132.5% from 2009 to 2011.
- Rural employment program, transportation and continuing mobile telephony penetration to ensure smart cards TAM revenues to grow by more than 50%.
- Increasing consumption and favorable Government regulation propelling TAM revenues for consumer electronics products such as LCD TV and STB to grow in excess of 50%.
- Anticipated marginal decline in the manufacturing index of industrial and automotive segments expected to correct itself in the long term.

Overall India Electronics market

The ISA-F&S report forecasts the Electronics Total Market (TM) and Total Available Market (TAM) to grow at CAGRs of 19.8 and 21.4 (from 2009-2011) percent respectively to reach US\$58.4 billion and US\$37.1 billion in 2011. At the end of 2009, the corresponding Electronics TM and TAM were US\$ 40.7 billion and \$25.4 billion.

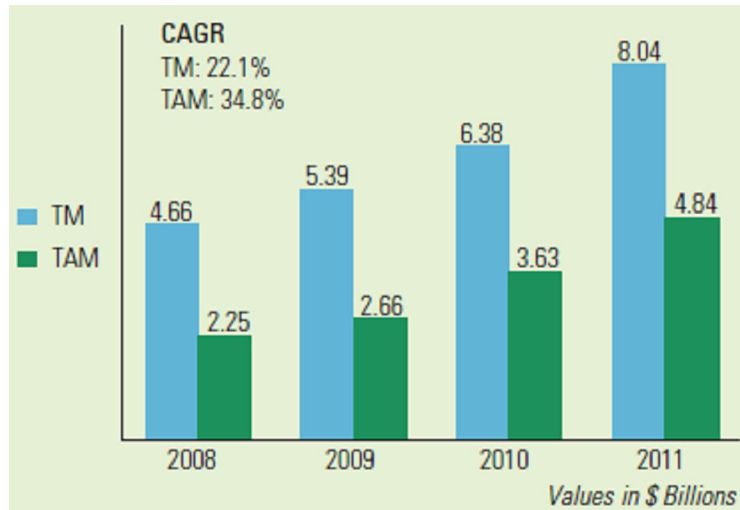
Electronics TM here incorporates total unit production (excluding assembly) + imported units (all forms:

SKD, CKD or completely built unit). Electronics Total Available Market (TAM) incorporates Total unit production (excluding assembly) + CKD imported units (to represent assembly activity in India).

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Overall India Semiconductor market

The semiconductor market TM and TAM are given below. It is important to note the semiconductor TM & TAM definitions below.



Total Market (TM) for semiconductors: The total consumption of semiconductors in India, in any form (can be purchased locally, imported as part of Completely Knocked Down (CKD) or Semi Knocked Down (SKD), imported as a complete product), by any source. (Sources are directly from semiconductor company offices in India, distributor sales, direct imports etc) and in either currency (US\$ or Indian Rupee).

Total Available Market (TAM) for semiconductors: Consumption of semiconductors in India by virtue of manufacturing of end-user products in India + consumption through a local purchase order in India.

Share of Semiconductor TM/TAM by application segment

The percentage share of the semiconductor TM/TAM during the period 2009-11, by segment, is as follows:

Segments	% share of TM		% share of TAM	
	2009	2011	2009	2011
IT & OA	34.1	28.0	22.4	13.9
Wireless handsets	27.5	26.0	46.5	36.4
Telecommunications	19.3	26.5	10.8	32.5
Consumer electronics	8.0	8.1	6.6	5.7
Industrial electronics	4.3	4.3	7.0	5.6
Automotive electronics	1.9	2.0	2.6	2.2
Other electronics	4.9	5.1	4.1	3.7

Semiconductor TM and TAM analysis by segment

• Telecommunications

Key drivers:

1. **TM & TAM:** Rollout of 3G & WiMAX infrastructure, and penetration of broadband services.
2. **The significant increase in manufacturing index, and hence 2011 TAM, in telecom (driven by BTS manufacturing in India) is noteworthy.** EMS contribution has seen a sharp rise.
3. WiMAX CPE and BTS manufacturing to pick up in 2010
4. Planned increase of broadband subscriber base from 8 million to 250 million by 2012 to stimulate TAM revenues

Year	TM USD million	TAM USD million	Manufacturing Index (MI:TAM/TM)
2009	1040.6	291.2	0.28
2011	2133.8	1574.6	0.74
CAGR (2009-11)	43.2%	132.5%	

• Wireless Handsets

Key drivers:

1. **TM & TAM:** GSM Handsets of <\$30, \$30-75 and CDMA of <\$75
2. Subscriber addition along with export growth during the forecast period

Year	TM USD million	TAM USD million	Manufacturing Index (MI:TAM/TM)
2009	1485.4	1238.0	0.83
2011	2086.7	1756.0	0.84
CAGR (2009-11)	18.5%	19.1%	

• IT & Office Automation

Key drivers:

1. **TM:** Govt. IT initiatives, low priced notebooks, netbooks and storage flash memory
2. **TAM:** Low priced desktops, LCD monitors
3. Stagnant demand for desktops to impact improvement of TAM revenues
4. Demand for CCTV systems to benefit TM revenues

Year	TM USD million	TAM USD million	Manufacturing Index (MI:TAM/TM)
2009	1838.6	595.6	0.32
2011	2253.2	674.5	0.30
CAGR (2009-11)	10.7%	6.3%	

- **Consumer electronics**

Key drivers:

1. **TM:** STB, LCD TV and Digital Cameras
2. **TAM:** STB, LCD TV and Water Purifiers
3. Favorable duty structure to act as impetus for increased manufacturing of STB and LCD
4. ASSP prices in LCD to decline riding on higher off-take

Year	TM USD million	TAM USD million	Manufacturing Index (MI:TAM/TM)
2009	430.4	175.8	0.41
2011	655.2	277.5	0.42
CAGR (2009-11)	23.4%	25.6%	

- **Industrial electronics**

Key drivers:

- **TM:** Power Supplies, Online UPS, CFL, and Energy Meters
- **TAM:** Energy Meters, UPS Offline and CFL

Year	TM USD million	TAM USD million	Manufacturing Index (MI:TAM/TM)
2009	229.3	185.8	0.79
2011	350.8	270.5	0.77
CAGR (2009-11)	23.7%	22.0%	

- **Automotive electronics**

1. **TM:** 2-wheeler instrument clusters, 2-wheeler body electronics, EMS
2. **TAM:** 2-wheeler instrument clusters and body electronics
3. Growth of HCV & lack of proportionate manufacturing of EMS to result in decline of MI

Year	TM USD million	TAM USD million	Manufacturing Index (MI:TAM/TM)
2009	105.1	73.3	0.70
2011	160.4	105.6	0.66
CAGR (2009-11)	23.5%	20.0%	

- **Others (aerospace, defense, medical electronics, smart cards) electronics**

Key drivers:

1. **TM:** Smart cards driven by e-Governance, Aerospace programs, Rural Healthcare initiatives
2. **TAM:** Government ID programs covering NREGA, PDS, SCOSTA to drive growth

Year	TM USD million	TAM USD million	Manufacturing Index (MI:TAM/TM)
2009	263.0	108.2	0.41
2011	406.2	181.2	0.45
CAGR (2009-11)	24.3%	29.4%	

Semiconductor product types

The contribution of the different semiconductor product categories in the 2009 TAM is given below:

Semiconductor product market	2009 (USD mill.)	2011 (USD mill.)
Discretes	257.5	385.3
Sensors	110.9	157.8
Analog-Power	219.8	324.5
Analog Mixed Signal	192.8	522.0
Microprocessor	269.8	309.0
Microcontroller	63.9	85.3
Digital Signal Processor	7.1	149.6
Memory IC	538.7	828.9
Logic IC/FPGA	54.3	143.1
ASIC	135.0	743.6
ASSP	800.2	1163.8