

ISA - FROST & SULLIVAN

Quarterly Update

(May - July 2010)

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ISA is the premier trade body representing the Indian Electronic System Design and Manufacturing ESDM industry and has represented it since 2005. It has around 140 members –both domestic and multinational enterprises. ISA is committed towards building global awareness for the Indian ESDM industry and supporting its growth through focused initiatives in developing the ecosystem. This is through publishing credible data, networking events and alliances with other international associations. ISA works closely with the Government as a knowledge partner on the sector, both at the federal (centre) and the state level. ISA has played a prominent role in supporting the Government of India in the formation of the Semiconductor Policy 2007. It has helped the Government of Karnataka in the formation of the State Semiconductor Policy 2010. www.isaonline.org

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Contents

Contents

Indian Semiconductor Market	09
Wireless Handsets	10
Telecommunication	12
Consumer Electronics	14
Automotive Electronics	16
IT / OA	19
Industrial Electronics	21
Others	23

Indian Semiconductor Market – Q2, 2010 Update

The second quarter of 2010 mirrored the growth in the first quarter across all sections of the semiconductor market. Some of it was better than the growth in the previous quarter. The much hyped and anticipated third generation (3G) and Broadband Wireless Access (BWA) auctions finally saw the light of day, adding a whopping USD 23.5 billion to the exchequer. The addition in wireless subscription continued with the same zeal through the quarter, with each month witnessing new additions in excess of 16 million. On the other hand, broadband subscription continued to see a languid response, with the total broadband subscriber base barely managing to pass the 9 million mark.

Football World Cup 2010 and the approaching Commonwealth Games have given TV manufacturers and the Direct-To-Home (DTH) service providers enough to cheer for. The sales of LCD TVs and DTH subscriptions have been on the rise and this trend is expected to continue through the third quarter. The unbearable summer months saw a spike in the sales of refrigerators and air conditioners across the country. Most of the top brands of these two products witnessed sales growth in excess of 100 per cent in May and June this year compared to the same period last year. The introduction of multiple new models at various price points enabled suppliers to achieve such sales.

India continues to be of interest to the global automotive industry. From new launches to plans of capacity addition or setting up of engineering centers, all global automotive majors have India in their scheme of things. The Indian Government's initiative to increase the penetration of Compact Fluorescent Lamp (CFL) by using the Clean Development Mechanism (CDM) initiative under the Kyoto protocol, is expected to help subsidize the rates of CFL and encourage its adoption. The inclusion of smart cards in various e-Governance initiatives is expected to heighten in the current fiscal, following the lead taken by the NREGS scheme.

Keeping pace with the developments in the various end-user markets, chip vendors are also continually upgrading their technology and products to meet the requirements of the users. The increase in penetration of smart phones has created a market for (Micro-Electro-Mechanical Systems) MEMS gyroscope chips that are being used in smart phones to keep pace with the human interface trends. The advent of MEMS gyroscope chips is expected to usher newer applications for indoor navigation

in high-end smart phones. The development of (High Definition Television) HDTV chipsets that enable 3D viewing is the current big trend amongst consumer chipset vendors. Since 3D is the next big wave in not only consumer applications, but also healthcare, education and arts, chipset vendors are enhancing their offerings in this space by incorporating (expansion) HDMI compliance, 2D to 3D conversion, 3D chipsets for mobile TV, etc.

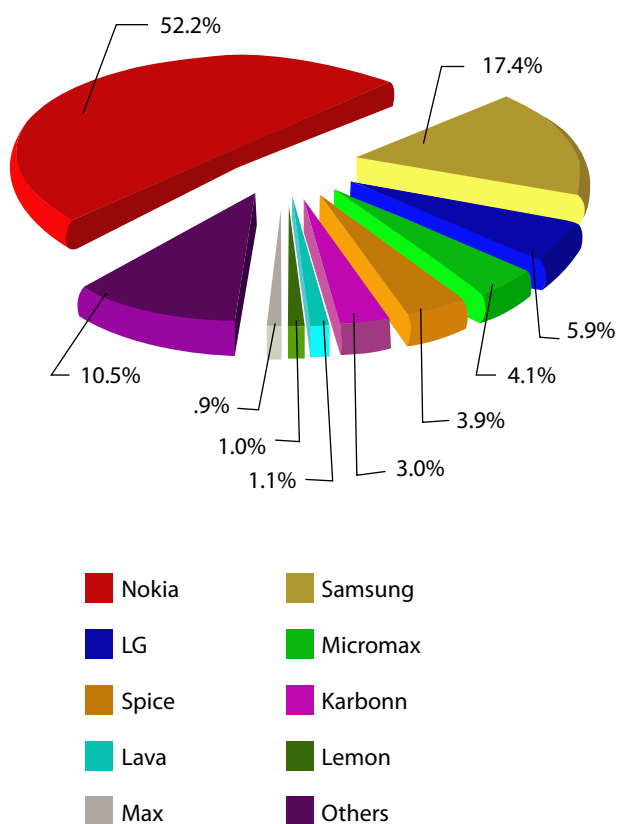
Globally, as well as in India, semiconductor and electronics companies are increasingly focusing on healthcare and green energy as the two key growth areas. Applications such as Light Emitting Diode (LED) lighting for backlighting and general illumination, energy measurement chips, solar cells, telemedicine and biopharmaceuticals are some of the areas of focus for chipset development in the second quarter of 2010. The global semiconductor inventory levels continued to remain lean in the second quarter, which extended the lead times across the entire supply chain. While there was a marginal improvement in the second quarter from the previous one, semiconductor suppliers continued to witness the strain on their capacity to keep up with downstream demand.

Wireless Handsets

The growth of the wireless handsets segment is one of the most significant contributors to the Indian semiconductor market responsible for USD 1.48 billion of TM and USD 1.23 billion of the TAM revenues in 2009. This segment is especially critical for semiconductor products such as ASSP as nearly 50 per cent of its overall revenues come from the handsets market. The handsets market is indeed considered as a star segment for the Indian electronics and semiconductor industry as there is ample scope for mobile penetration to go higher.

The potential in the Indian handsets market has attracted a multitude of vendors, most of whom are local players. These homegrown handset makers including Spice, Micromax and Karbonn, together captured 14 per cent of the mobile phone market in the financial year, 2009-10. While Micromax had a 4.1 per cent market share by revenue, Spice and Karbonn had shares of 3.9 per cent and 3 per cent, respectively. Others such as Lava, Lemon and Max obtained a share of 1.1 per cent, 1 per cent and 0.9 per cent, respectively.

Indian Handset Market: Market Shares, FY 2009-2010



The indigenous handset makers enjoy their newly captured market presence. Nonetheless, one of the top three multinational brands, LG Electronics, is set to open 100 exclusive mobile handset stores across the country to enhance market visibility. The company is targeting a market share of 10 per cent by the end of 2010 in an estimated USD 2 billion wireless handset market. The company plans to enhance its retail distribution network from 20,000 to 40,000 dealers in India.

Currently, about 50 per cent of Indians use the ultra low cost handsets. The companies that target this segment are bound to reap benefits of huge sales volume. This is expected to result in gaining visibility for the companies in the semi-urban and rural markets.

Some of the notable announcements in this market include:

- OSCAR, the consumer electronics brand, recently entered the mobile phones market in the Value For Money (VFM) segment. It is expected to strengthen its presence in the high growth potential - rural market besides the burgeoning urban market. The company anticipates a sale of 100, 000 mobiles per month in north and east India with a turnover of USD 56 million by the end of first year and thereafter grow at 15-20 per cent annually. In five years, the company targets to reach a turnover of USD 222 million.
- Wynn Telecom has introduced its GSM mobile handsets in Tamil Nadu. The prices range from USD 33 to 111 and there are seven models with features like multimedia, social network applications and QWERTY. The products have already been launched in Mumbai and Delhi and would soon be followed in Hyderabad and Bangalore. The company has roped in 430 distributors across the country within 21 days of floating the invitation.
- In early May, Vodafone launched ultra low-cost handsets priced at USD 18 claiming it as the country's most affordable handset.
- Nokia also introduced four new low-cost mobile phones (Nokia 2690, Nokia 1800, Nokia 1616 and Nokia 1280) under its entry level mobile phones range in the Indian market. These four models have all the popular multimedia features such as access to the Internet/GPRS, music with 3.5 mm audio visual connector, long lasting battery (up to 22 days battery standby time), flashlight, dust resistant keypad, anti-scratch cover, multiple phone books, speaking clock in several local languages, etc.
- Samsung India which is currently focusing on dual SIM handsets, has introduced two handsets in the market-B 5722 touch-screen phone and Duos 259 multimedia phone. With the new launches, the company now has six dual SIM handsets in its portfolio.

- Coolpad Communications has released its first touchscreen CDMA phone, S100. This feature-rich model will be retailed through Reliance World Stores and is 30 per cent cheaper than similar touch-screen phones available in the market. The company has also introduced its dual-mode handsets. It expects a sale of one million handsets annually. Expected to set up a full-fledged R&D centre, Coolpad plans to invest USD 89 million in the coming four years.
- Nokia has introduced three new QWERTY devices priced between USD 118 and USD 236 (with keypad similar to a computer keyboard) and also released a new version of its messaging service with free push e-mail facility. The new mobile handsets are mainly targeted at the youth and executives who are the main users of chat and e-mail services.
- The Delhi-based Airfone India has launched music mania series and basic phones with high-end features. These are based on music chipset that produces high quality sound and earphones acoustically designed to attain a certain level of noise cancellation which enhances the user experience. The feature-rich, entry and middle level handsets are priced between USD 31 to 76.
- Zen Mobile has launched its first multimedia stylish and multi-faceted slider phone, S10 with metallic body which is priced at USD 111.
- MVL Telecom entered the mobile phone market by launching handsets which include a 'push mail' model, priced between USD 31 to 111 and have the latest multimedia features. The company also plans to invest USD 18 million to set up R&D centres in India and China to meet the needs of the domestic market.

Telecommunication

The telecommunication segment is a pivotal contributor to the country's GDP. The advancements in wireless communication and networking technologies have ushered a revolution in the Indian telecom space. The continually increasing penetration of mobile services is sustaining the demand for telecom infrastructure. This high growth sector is a significant contributor to the semiconductor industry. The increasing impetus on local manufacturing of telecom gear is providing the necessary thrust to the semiconductor TAM revenues. The government's target of achieving 100 million broadband users by 2014 appears achievable only with the deployment of wireless technologies like WiMAX. This in turn is expected to drive the demand for telecom infrastructure in the country. The government's stringent norms on usage of imported Chinese telecom equipment are expected to increase the quality of locally manufactured telecom equipment. The impact of this on the semiconductor TAM revenues is an explosive 100 per cent plus growth.

3G and BWA Auctions – Talk of Q2

The much awaited 3G and BWA auctions finally saw the light of the day in the previous quarter. Not only did the auctions give cheer to consumers who were looking forward to the next generation mobile services, it gave the government a major boost to offset some of its fiscal deficit. At the end of the spectrum auction, end of May, the government received USD 15 billion with all nine telecom companies making full payment to the exchequer for 3G spectrum. The BWA auctions, which commenced subsequently, added another USD 9 billion to the exchequer. It is interesting to note that the total revenues for the government from the sale of spectrum for both 3G and BWA was over USD 24 billion, more than thrice the earlier projection of USD 8 billion by the Finance Minister, Pranab Mukherjee in his Budget speech in February this year.

As the spectrum allocation auctions get completed, the service providers are expected to focus on building or augmenting their infrastructure to roll out the 3G services in the near future. The 3G base stations and 3G enabled handsets are expected to see a rise in demand in the ensuing quarter.

India Evolving as a Telecom Manufacturing Hub

The telecom equipment manufacturers are seen increasing their manufacturing footprint in the country either directly or through the EMS route so as to capitalize on the high demand market here as well as to export to nearby locations. The government's tightened security norms on import of telecom equipment are also responsible in drawing manufacturing investments in the country.

Some of the recent developments with respect to local manufacturing propositions by telecom vendors are:

- Both UTStarcom and Alvarion have taken initiatives to locally manufacture their products. While UTStarcom has identified an Indian joint venture partner, Alvarion is still in the planning phase. Alvarion recently partnered with two Indian companies to win a project from BSNL to roll out WiMAX-based broadband services based on the franchisee model.
- Chinese telecom companies have proposed to set up manufacturing facilities in India, in partnership with local firms, as one of the steps to address security concerns expressed by the government. The idea was mooted by the Chinese Ambassador during his meeting with P J Thomas, Telecom Secretary, recently.
- Nokia Siemens Networks became the country's first telecommunications infrastructure vendor to commence 3G manufacturing in India. The announcements were made early April that the first batches of LTE-ready 3G base stations are being rolled out.

Service Providers' Expansion Plans

The competition amongst mobile service providers has been at its peak in India. Value adding services have been used as the Unique Selling Proposition (USP) by most operators to differentiate from competition, pricing being the other critical differentiator. The scope for mobile service penetration is still huge, despite the competition, especially among suburban and rural India. As a result, the operators have been quite active with their expansion plans. Network expansion invariably calls for more base stations and other network equipments, which, in turn imply incremental demand for semiconductors that go into them. Some of the recent expansion plans include:

- Having crossed 70 million subscribers in May 2010, Tata Teleservices is now targeting 100 million subscribers by the end of this year. The operator is betting big on its 3G services and network expansion to support its high-speed Internet & Data Access on mobiles.
- Bharti Airtel extended its partnership with Ericsson through a USD 1.3 billion network expansion contract that will enable Airtel to put in place a converged network and expanded coverage in rural India. As part of the agreement, Ericsson will expand and upgrade Airtel's network in 15 circles.
- Uninor launched its operations in December last year in India and has five million customers across all the southern states, Orissa, UP and Bihar. The company launched its services in five more telecom circles, namely, Mumbai, Kolkata, Maharashtra and Goa, Gujarat and West Bengal, taking its presence to 13 circles in India. It is targeting an eight per cent market share by 2018.

- Vodafone Essar, India's second-largest wireless operator by revenues, is entering the fast-growing enterprise services market. The Indian enterprise data connectivity market is growing at a 10 per cent annual rate and is estimated to be around USD 10 billion in the next five years. The company proposes to offer simple telephony, domestic and international leased lines, domestic and global VPN connectivity, to start with. To facilitate roll out of services, Vodafone Essar has set up a Network Operation Center (NOC) in Pune.

Vital Telecom Statistics, April & May 2010

Statistics	As of April 30 2010	As of May 31 2010
Total Telephone Subscriber base	638 Million	654 Million
Wireless Subscriptions	601 Million	618 Million
Wireline Subscriptions	37 Million	36 Million
Tele-density	54	55
Broadband Subscriptions	9 Million	9 Million

Investments in the Telecom Sector

The telecom sector has been rife with investment news, either for expansion of operations, setting up of R&D, Engineering centers or augmentation of telecom network. Most of these investments have either a direct or indirect impact on the semiconductor industry. Some of the investment announcements made in second quarter of 2010 are:

- Telecom Equipment and Services Export Promotion Council expects an investment of USD 40 billion in the country in the current fiscal. The investment is intended for the development of 3G, BWA and expansion of existing networks. This is in light of the fact that the country looks forward to build a network of 1 billion mobile phones over the next two years, the investment in the previous year being USD 20 billion.
- Having launched its GSM mobile services in Kerala, Videocon plans to invest USD 89 million in the state with over 1500 base stations in the first phase. The company which is the 11th mobile service provider in Kerala, has plans to become one of the top three players in the state in the coming three years.
- ZTE plans to invest approximately USD 44 million in the R&D centre in Bangalore in the current financial year. The company also announced the expansion of India Engineering Centre (IEC) in New Delhi.

- Alcatel is expected to shift services hub to India, leveraging on the country's people and cost advantage. The investment is expected to be over USD 500 million over a period of three years. While the company considers France, US and China as its three pillars, it is targeting India as its fourth pillar.
- Bridgewater Systems, the mobile personalization company, opened a new Center of Excellence in collaboration with Wesley Clover in Gurgaon, Delhi NCR in mid-May 2010 as part of the company's strategic move to expand in Asia Pacific.
- Loop Mobile, Mumbai's oldest mobile service provider, invested USD 44 million in a major network upgrade to further expand its network in the city.
- The Korean Communication industry also aims to tap the Indian market owing to the burgeoning demand for communication technology infrastructure and products in India, during and after the 21st Commonwealth Games in New Delhi. As a result, a major corporate tie-up between the conglomerates of India and South Korea is expected.
- Reliance Industries is expected to invest USD 5 billion in two years as it completes its telecom rollout for broadband access across India. The company is expected to lease the passive telecom infrastructure such as towers from the existing players. News has it that it is open to share it with Reliance Communications.

Consumer Electronics

The consumer electronics market in India is very vibrant and has captured the attention of all the global consumer electronics majors. The past quarter has seen a slew of announcements from all the consumer electronics companies. These announcements have been about their proposed expansion plans in the country, emphasizing India's prominence on their business map. These companies consider India as not only a good market for local demand, but as an export hub for catering to the demand in neighboring South Asian and Middle East countries. The increasing level of local manufacturing in this segment makes it extremely significant from the semiconductor viewpoint as it represents increased demand for local semiconductor vendors. The consumer electronics segment contributes to nearly 21 per cent of the total electronics industry in the country and is critical to the semiconductor industry, as well. The features in most of the consumer durables warrant increase in semiconductor content per product, thus, becoming a significant target sector for semiconductor companies.

Televisions

From the semiconductor industry stand point, among all consumer durables, televisions (TVs) are the major contributors to the semiconductor industry revenues, owing to their high volumes. LCD and LED TVs have higher per product semiconductor eBOM and this is a favorable trend considering the various announcements of new launches and expansion plans made recently. Some of these new announcements of TV companies are:

- MIRC Electronics, the owner of Onida brand, proposes to launch three new TV models and set up brand stores in all the metros. The company is targeting a 25 per cent increase in its annual revenues through these new launches.
- Godrej launched its Eon LED TV in Kerala this April. It targets selling 300, 000-350,000 units of TVs in the states of Andhra Pradesh, Kerala, West Bengal and Maharastra in the current fiscal.
- Videocon has signed a five year agreement with Philips to make and sell Philips brand of TVs. The latter proposes to revive its declining TV business through this partnership in the short term. In the long term, Philips expects to target India as a low cost manufacturing hub for its TV business.
- TPV India, the 'AOC' brand of PC monitor suppliers, has forayed into the LCD TV market in the country with the launch of its same brand LCD TVs priced between USD 289 - 889. The company, with a sales target of 100, 000 units by the end of 2010, is focusing on marketing its product in the Tier II and III cities. It currently imports its TVs from manufacturing units in China, Poland, Brazil and Mexico. However, TPV has plans to set up a manufacturing facility in the country by the fourth quarter of 2010.

The trends in new model additions and growing sales of LCD TVs bodes well for the ASSP, Logic/FPGA and analog product markets. The capacity expansion plans represent a greater opportunity for the local semiconductor vendors as it directly results in higher TAM.

Digital Cameras

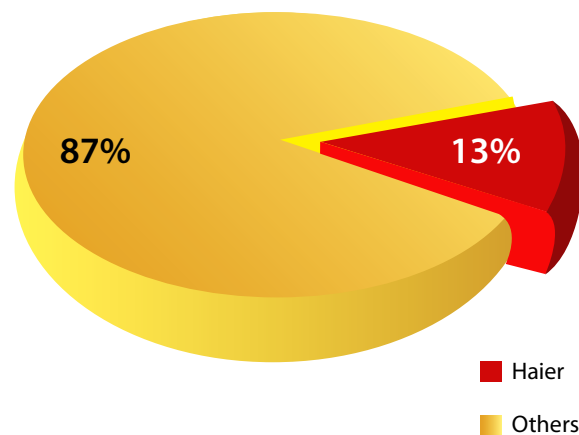
Irrespective of being a product with lower volumes and no TAM, digital cameras are important for gauging the opportunity for semiconductors owing to their high eBoM. With an eBoM of USD 30 per product, the increasing sales of digital cameras are a bellwether to the incremental loss of opportunity for semiconductor vendors due to an absence of local manufacturing. Some of the recent product announcements include:

- Samsung proposed footprint expansion plans by partnering with retail shops such as Croma, Next, etc to enhance its outlet presence. By doing so, the company aims to double its market share and grow its volume sales by over 90 per cent this year.
- Canon launched 20 new, next generation cameras and announced investment of USD 12 million towards marketing.

Refrigerators & Air Conditioners

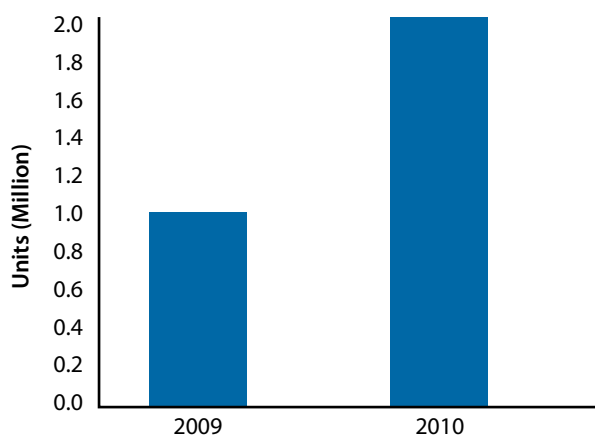
The summer months witnessed a rise in the sales of air conditioners (AC) and refrigerators. Apart from fresh entrants into the market, there were announcements of capacity expansion by most of the major players, which is expected to positively impact the semiconductor companies. Logic/FPGA, MCU and discrete vendors benefit from the rise in the TAM in these product segments. Some of the notable developments in these markets include:

Refrigerator Sales Volume, 2011



- Haier India targets its refrigerator sales to cross a million units by 2011. Refrigerators contribute to nearly 30 per cent of the company's turnover in the country. It is also expanding its manufacturing facility in Pune by adding two production lines with an investment of USD 22 million.
- GE Appliances has entered the Indian market through the launch of its Air conditioners. The company targets revenue of USD10 million in the current fiscal, with its air conditioner product line, contributing nearly 60 per cent of this and the remaining from its refrigerators, washing machines and cooking appliances product range.

Samsung Refrigerator Sales, 2009-2010

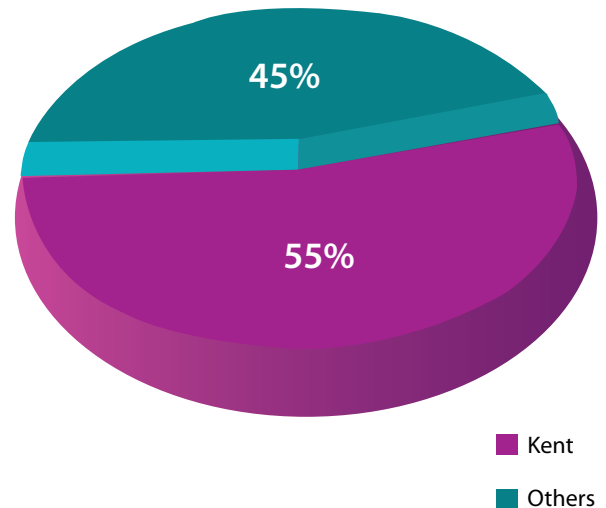


- The summer of 2010 witnessed the launch of numerous models of refrigerators, with Samsung and LG dominating the launches with 63 and 23 new models, respectively. Both the companies are aggressive in increasing their market share in the refrigerators market. Samsung, through new launches is targeting at increasing its sales to 1.85 million units by the end of 2010.
- LG Electronics India Limited would be launching a new refrigerator that offers 18 per cent energy savings over existing models as part of its energy efficiency campaign.
- April and May were hot months for air conditioner sales. All leading brands including Voltas, Samsung, Hitachi, Panasonic, Onida, Whirlpool and LG witnessed sales growth in excess of 50 and some even 100 per cent during these months.
- Both LG and Samsung have been in the forefront of new launches for ACs, as well. The companies launched 16 and 26 new models, respectively. Samsung has invested USD 10 million to expand its production capacity to 1.2 million units of air conditioners. Videocon too launched 50 new models of ACs in the second quarter of 2010.
- Daikin proposes to enter the home AC market in India with its FTE brand of 0.75-1.8 ton ACs. The company is ramping its manufacturing unit at Neemrana, Rajasthan which currently has a capacity of 300,000 units per year.

Water Purifiers

The impending hike in demand for online water purification systems following the advent of the monsoon is expected to drive fresh demand for semiconductor products such as microcontrollers and discretes in the ensuing quarter. Some notable developments in this market are:

Water Purifier TAM, 2010



- Addition of one more manufacturing facility by Kent RO at an investment of USD 4 million in Noida. This expansion is expected to drive its manufacturing capacity from 500,000 to 700,000 units per year. The company expects to increase its revenues by 50 per cent from USD 38 million in fiscal 2009 to USD 56 million in the current fiscal.
- LG Electronics India Limited is expected to enter the consumer water purifier segment this year. The company proposes to launch water purifiers that have the technology to provide both hot and cold water.

A/V Players

A zero TAM but rapidly growing TM is the characteristic of the A/V player market. Philips has ambitious plans of expanding its footprint in this market, overcoming its competitor, Apple. The company banks on software Songbird to boost its market share in the MP3 player segment from the current 15 per cent to the double of that. It is expected to launch seven new models of its Go Gear brand of MP3 players in 2010.

Automotive Electronics

The automobile industry in India is poised for high growth owing to the surge in local demand as well as strong export opportunities. The higher disposable income of the middle class is a key driver in this segment. As all electronic control units in automobiles have microcontroller (MCU) units for central processing and control, the increase in usage of electronics in automobiles is expected to additionally contribute to the MCU market.

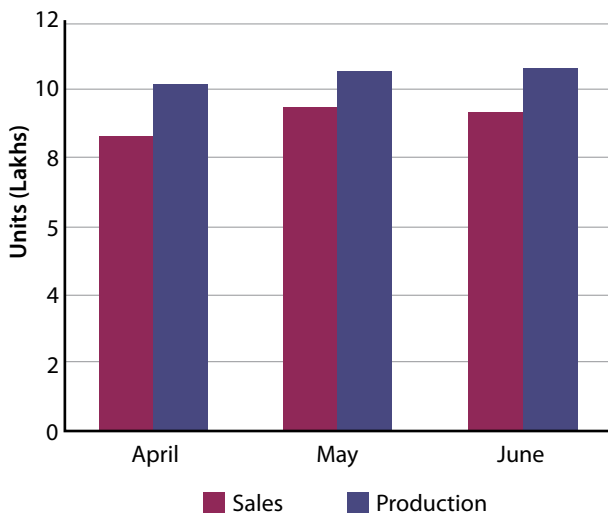
CDI, Flashers, Regulators and Instrument Clusters – Two Wheelers

Since CDI, flashers and regulators are automotive electronic components of a two wheeler, the growth of these component markets is attributed to the expansion of two wheeler market.

Some of the recent developments in the two wheeler market are:

- Honda Motorcycle & Scooter India (HMSI) has introduced the new version of its 150 cc bike, Unicorn which is priced at USD 1398. It has Bharat Stage III emission compliant engine and five-speed transmission and offers a mileage of 60 km a litre. The company expects its bike sales to take over its scooter sales in the next fiscal.

India Two Wheeler Market: Sales & Production, Q2 2010



- HMSI has also announced its plans to set up its second two-wheeler plant in Rajasthan with an investment of USD 111 million. The plant is expected to have an annual capacity of 600,000 units and is likely to become operational by middle of 2011. Its current plant at Manesar, Haryana has an annual capacity of 15.5-lakh units, which is expected to be expanded to 1,600,000 units by next year.

- Harley-Davidson, the US-based bike-maker, has released its motorcycles in 12 models priced between USD 15,444 to 77,666. Since all its bikes are imported from the U.S. facilities as Completely Built Units (CBU), it would not contribute to the TAM of semiconductors.
- Yamaha plans to make India the manufacturing hub for premium motorbikes for the global markets. The company also plans to expand its product portfolio in India by launching a scooter that will tap into another growth segment where the demand is yet to be assessed by the company. Since all major automobile manufacturers are looking at lowering cost of operations, India is bound to become the most important manufacturing hub.
- Mahindra & Mahindra (M&M), having an eight per cent market share in the two wheeler segment, is targeting a double-digit growth in the next two-years. The company also plans expansion of its current capacity of 500,000-600,000 units per year to higher production volumes.
- European motorcycle manufacturer, KTM Power Sports AG and Bajaj Auto have signed an agreement to jointly develop 125 cc bikes, which will be built at Bajaj's Chakan plant near Pune for exports to European market under the KTM brand.
- TVS Motor Company has launched its first metal bodied scooter WEGA in Nagpur. Its features include a 110 cc engine that delivers a peak power of 8 BHP at 7,500 rpm, an external fuel fill with hinged cap and an under seat charger for cell phones amongst the others.
- TVS has set its plans to focus and grow in two-wheeler segment and launched - Jive, an urban bike with an auto clutch.
- Bajaj has announced its plans to sell four million two and three-wheelers in the current financial year.
- Hero Honda is planning a new greenfield factory, with the company's Gurgaon, Dharuhera and Haridwar plants already working to capacity.

Immobilizers, ABS, Power Windows, ECU, Remote key less entry

Automotive electronics in four wheelers is also witnessing high growth owing to the increased demand due to increasing disposable incomes. The TM for semiconductors is on the rise and is attributed to increased usage of electronic rich components like immobilizers, ABS and power windows even in the mid-segment cars.

New launches in the small car segment and healthy economic growth have resulted in car manufacturers witnessing notable sales in the last fiscal (2009-10). The market leader, Maruti Suzuki

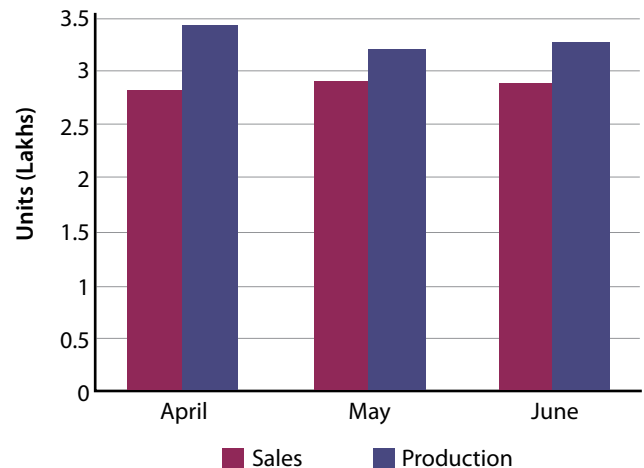
sold over one million units which makes it the first company in India to achieve this feat in a single year. Hyundai and Tata Motors, Maruti Suzuki's close competitors, sold over 600, 000 and 350, 000 units, respectively.

Some of the recent developments in the four wheeler market are:

- Tata Motors has introduced a high-end variant of its Indica Vista range, the Aura+ that is equipped with safety features like airbags, ABS, a new synchromesh gearbox, drive-by-wire technology, remote keyless entry and the Blue 5 technology.
- Toyota Kirloskar Motors (TKM) is expected to increase its domestic market share from 3 to 10 per cent by 2015. The company is shortly expected to finalise on the localization strategy for manufacturing its small car, Etios hatchback and Sedan in its new assembly base that is coming up in Karnataka. The company is investing close to USD 711.11 million in the new plant which is expected to enhance its production capacity.
- Mercedes Benz has launched a new petrol variant of its entry-level, C-Class sedan in India, priced at USD 63, 200 and the engine can run on high excess air and thus, offer better fuel efficiency.
- HM-Mitsubishi Motors has launched Outlander 2010 that is equipped with a BS-IV compliant 2.4 MIVEC engine. Some of the key enhancements in the Outlander include the jet-fighter front grill, bulged rear bumper, silver-colour roof rails and HID head lamp with AFS function. It also has a theft protection device, alloy brakes and clutch control.
- BMW, having launched its new 5 Series sedan in India, has set a higher target of achieving sales of 4,000-units this year and also plans to expand its network by taking the brand to Tier-II and Tier-III cities. The company is expected to increase both, production and manpower at its Chennai plant.
- Ford India has announced that post-Figo launch, their sales have trebled in April this year as compared to the same period previous year. Since this demand-push had already caused supply constraints, the company is going for a second shift in June and is expected to add another 700-800 people to its workforce to facilitate the second shift operation.
- Ford India is also likely to focus on products to provide mass transportation to the common man.
- The new generation, Maruti WagonR was launched in Kochi recently and the company enjoys over 900, 000 owners across the nation.
- Hyundai Motor India Limited (HMIL) is likely to tap new export markets such as Russia, New Zealand and Vietnam later this year and targets 10 new export markets over a period. The company recently crossed a milestone with a cumulative export of one million cars when it loaded its i20

hatchbacks to Australia from the Chennai Port becoming the first company in India to achieve this feat in just over a decade.

India Four Wheeler Market: Sales & Production, Q2 2010



- Mahindra Renault Private Limited (MRPL), a joint venture partnership, manufacturing Logan at Mahindra's plant in Nashik, have announced their restructuring plans. Nevertheless, Renault will continue to support M&M and the product through a license agreement and supply of key components. The restructuring will result in MRPL becoming a 100 per cent Mahindra group-owned company but the Renault name and logo will continue to be used on the Logan till the end of the calendar year, 2010.
- Hyundai Motor India has launched its new version of premium compact car i20, in addition to its two variants, Era and Sportz with petrol and diesel engines.
- Nissan Motor India has commenced the production of its 'Made-in-India' compact car (hatch-back) Nissan Micra from its manufacturing plant at Oragadam.
- GM India is planning to launch a light commercial vehicle in collaboration with Shanghai Automotive Industry Corporation (SAIC). The architecture for the vehicle is likely to come from China but the product is expected to be manufactured in India. As per the company, the value of components sourced from suppliers in India amounted to USD 500 million in the January-March quarter.

E-Bikes

The government's move to free energy prices, which may raise fuel rates in the country, is expected to push the demand for small-capacity, fuel-efficient bikes. Some of the developments are:

- The demand for e-bikes is witnessed to be high in

Lakshadweep and the constraints on availability of petrol in the islands are cited as reasons for the demand.

- Electric car: GM is likely to develop electric car in the country. The company has decided to use their own design centres in Bangalore and Detroit to develop electric cars for the Indian market. The Chevrolet Volt, an Extended Vehicle (EV), which uses an internal combustion engine to recharge the battery, is expected in India in 2011. The company forecasts sale of about 4,000-5,000 units in 2011.

IT/OA

Microprocessor (MPU) is the core component and high value e-BOM component of several IT/OA products such as servers, notebooks and desktops. This has resulted in the segment being the largest contributor to the TM of MPU. This sector, has a very high potential growth and TM; but, the rather negligible manufacturing activity in this space is resulting in an insignificant TAM for MPU. The domestic consumption of IT products from residential, commercial and enterprise segments are on the rise. This coupled with the e-Governance initiatives are expected to increase the Information Technology (IT) spending in the country by 14-15 per cent in 2010. This segment, which contributed USD 1.84 billion to the semiconductor TM revenues in 2009, is expected to boost the figure to USD 1.99 billion in 2010. On the other hand, semiconductor TAM revenue contribution is expected to grow from USD 596.48 million in 2009 to USD 614.47 million in 2010.

Servers

MPU and memory are the high value e-BOM components of servers. The increasing number of Small And Medium Businesses (SMBs) mushrooming in the country are driving the sales of servers and with that the demand for memory and MPU semiconductors.

Some of the announcements in this market are:

- Hewlett Packard has introduced new server and storage solutions for SMBs that will enable them to protect data and manage operations efficiently. The company's new Proliant G7 server platform includes the scale-up server line, the rack optimized products and the blade server line.
- Siliconhouse.net. Private Limited, a Chennai based web infrastructure provider, accredited .IN domain register has launched fully managed YBOX servers and YBOX cloud servers. These servers are aimed at replacing mail or application servers, managed in-house by enterprises.

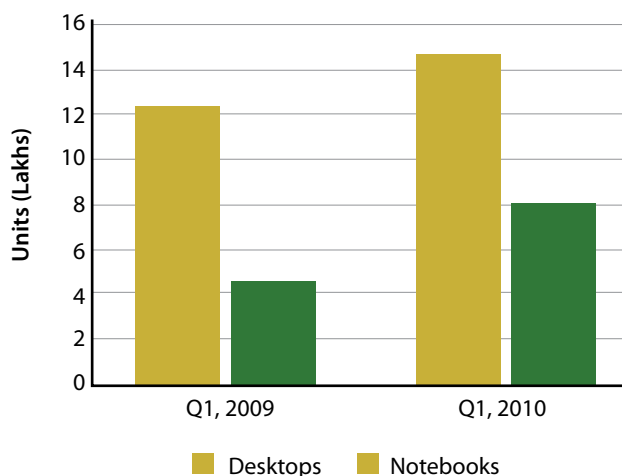
Desktops, Notebooks and Netbooks

The characteristic feature of the Indian PC market is showing a heavy tilt towards the notebook segment. The ratio of desktops to notebooks is gradually narrowing down and the advent of netbooks is accentuating the tilt. While the growth in notebooks is favorable for the semiconductor TM market, the absence of local manufacturing of notebooks casts a shadow on the semiconductor TAM. The declining sales of desktops that enjoy a high manufacturing index are hampering the cause of semiconductor TAM. Some of the recent announcements in the Indian PC market are:

- Approximately 800, 000 laptops were sold in the first quarter with HP leading at 207, 000, Dell with 202, 000 and Acer with 134, 000 laptops.

- Acer, which is currently in the third position in Indian notebooks market, is targeting the second position in 2010. The top two players are HP and Dell. Acer sells 37,000 notebooks per month of which, 15 to 18 per cent is netbooks. To help secure a second position, the company is in the process of launching 35 new models and the prices for netbooks is to cost upwards of USD 289 while a 1 GB notebook is expected to be priced at USD 956.

Indian PC Market Sales, Q1 2009 & 2010



- Toshiba India is expected to invest USD 10 million this fiscal in the notebook segment of the PC business. It announced the release of dual-touch-screen Windows mini-notebook PC, Libretto W100 and its thinnest and lightest full-function 33.8 cm laptop, Portege R700 in which the user can hold the Libretto W100 vertically to read the double-page spread of a newspaper.
- Zenith Computers plans to sell its laptop and desktop business to focus on the group's software business. As part of the plan, it is also expected to sell its PC manufacturing plant at Goa. RP Infosystem that sells computers under the Chirag brand is expected to be the likely buyer.
- AOC has launched an 'All in One' PC, M222T, which is a stylish super slim, feature loaded Touch screen PC with the latest Intel core-2 processor.

Monitors

Some of the recent developments in this market are:

- Acer India has launched five new TFT monitors—D240H, D241H, B273H, T231H, S243HL.
- BenQ has introduced world's slimmest LED monitor with HD technology. It is also expected to setup approximately 200 demo zones exclusively for LED display products across 15

cities in India. The new V series models include V920 with 14 mm thickness and 18.5" width. It costs USD 200 while the remaining two models V2220H with 21.5" width and V2420H with 24" width come in 15mm thickness and are priced at USD 333 and USD 422, respectively.

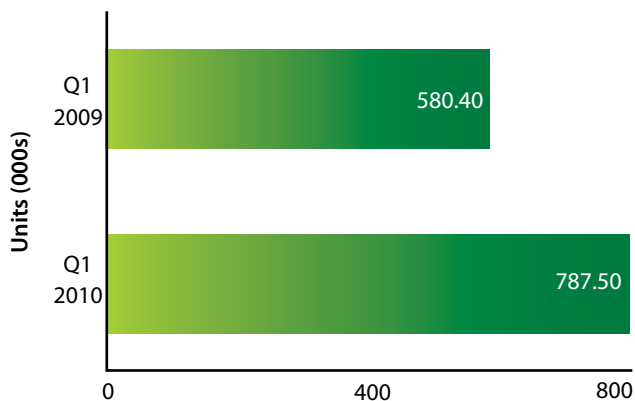
- AOC is expected to launch four new LED Monitor series in 2010 - Series 37, Series 39, Series 40 and Series 41. Soon all four series will be available in an 'ultra thin' look, and in a range of sizes starting from 18.5" up to 24".

Printers

Some of the announcements in this market are:

- Canon's latest image express campaign is expected to bring the company a 50 per cent hike in their printer sales in 2010 as compared to the sales in 2008.
- Samsung India is expected to aggressively grow its laser printer business as it is aiming a 30 per cent market share in laser printer (A4 size) this year from 21 per cent last year. In order to achieve the same, it has come up with a pricing strategy of selling its latest ML 1666 laser printer, which the company claims to be the 'world's smallest' laser printer, at an MRP of USD 122.
- The company has also released eight new models of mono laser printers, network and multi function printers competitively priced between USD 122 to USD 289. With this, it has lined up a slew of 33 printers across the three categories.

India Printers, Copiers and Multi Function Devices Market: Slaes, Q1 2009 & 2010



- Epson has also released its 'made for India printers' to tap the non-automated urban and burgeoning rural retail markets. The India-specific printer, Epson LQ-50, occupies less space, weighs less, prints on assorted paper types and is available in 10 different languages. Currently, Epson occupies a market share of 52 per cent in dot-matrix printers, 19 per cent in inkjet printers, 55 per cent in point-of-sale systems and 13

per cent in projectors. With the launch of LQ-50 printers, the company expects to improve the market share in point-of-sale systems to 70 per cent by 2012.

Thin Clients

- NComputing, a thin client vendor has plans to double the number of resellers it engages with from 150 to 300 by 2010 for its Indian business in the current fiscal. The company has received orders from education departments of states such as Andhra Pradesh and Jharkhand. It is expected to bag additional orders from approximately 10 other states for school computerization projects.

Storage USB Flash Memories

Flash drives are amongst the high growth IT/OA products. As flash/ pen drives have become as essential as mobile phones, their use and penetration has reached astounding levels. This has resulted in multiple vendors targeting the Indian market with their products. However, the lack of any local manufacturing of these flash memory drives makes them an unattractive segment for the semiconductor TAM. It also represents the amount of lost opportunity to the local semiconductor vendors due to absence of local manufacturing. Some of the developments in this market are:

- Strontium, memory chip manufacturer in India, has launched three new series of USB flash drives. The three series are known as Key, Spin and Hulk. The Key series is the smallest in size and is available in capacities of 2GB and 4GB and costs USD 8 and USD 11, respectively. The Spin series is available in 4GB, 8GB and 16GB storage capacities and costs USD 12, USD 22 and USD 44, respectively. The Hulk series features storage capacity of up to a whopping 128GB and costs USD 444. All these three series of pen drives come with a five-year warranty.
- Buffalo has launched a new range of ultra-compact USB RUF2 PSG flash drive series. The product is available in capacities of 2GB, 4GB, 8GB and 16 GB and is priced at USD 16, USD 22, USD 36 and USD 71, respectively.
- Transcend has released its JetFlash 620 USB flash drive in the Indian market. The product is faster, spacious and more secure that can protect the digital files from any illicit access. It incorporates an advanced dual channel technology which offers an access speed up to 32MB/s. The flash drive has a storage capacity of up to 32GB and the prices range from USD 21 to USD 81 depending on the capacities.
- Kobian has released its mercury high speed flash drives which comes in storage capacities ranging from 4GB to 64GB.
- Amkette has introduced the Amkette World Cup series flash drives. The USB flash drives have been designed in the shape of a jersey (4GB) and are priced at USD 22. The flash drives are available at e-Zone, Jumbo, Landmark and Hypercity stores as well as with major Amkette re-sellers across India.

Industrial Electronics

The average semiconductor eBOM value in many of the product segments under industrial electronics is less than USD 5 which makes it a weak contributor to the semiconductor revenues. Nevertheless, the portended growth across energy efficient product segments such as Compact Fluorescent Lamp (CFL) and Light Emitting Diode (LED) lighting, power back up products and three phase energy meters are expected to drive the contribution of the industrial segment to the semiconductor TM and TAM revenues. In 2009, this segment contributed USD 229 million and USD 182 million to the semiconductor TM and TAM revenues, respectively. By the end of 2010, this figure is expected to go up to USD 282 million and USD 220 million of the semiconductor TM and TAM revenues, respectively.

Inverters

Some of the recent announcements in this market are:

- Though targeted at the main house hold segment, Rahimafrooz has introduced a special range of inverter batteries for both domestic and industrial usage. The product is called 'Globatt Glow' promises longer life and low maintenance.
- Schneider Electric India has entered the Indian renewable energy market with the launch of the Xantrex range of renewable energy products. The products that have been launched in India consist of charge controllers, (expansion) MPPT solar charge controllers, solar invertors / chargers, grid tie inverters and off-grid and hybrid inverter chargers. These products will be distributed through a nation-wide distribution channel, supported by Schneider's nation-wide service network.
- Azure Power has formed a supply agreement with solar inverter company SMA Solar Technology. SMA will supply Azure Power with high-efficiency inverters to support the generation of over 10MW of solar electric power. This will help expand the capacity of India's first private utility-scale, solar plant and set up new solar power plants in India.

UPS and Stabilizers

Some of the recent announcements in this market are:

- Unitek Industrial Power Solutions' new factory which is an USD 7 million manufacturing plant, is expected to produce 300 UPS a month with a capacity of 1-40kVA in the first phase.
- Volcco has introduced a range of robust stabilizers that come with a unique 'boosting and bucking' system and have a seven year warranty. The company is expected to launch Volcco's Servo stabilizers and UPS' shortly.

- V-Guard has announced that due to the growth in white goods and other electronics and electrical segments, the company's net profit has surged by 46.85 per cent to USD 6 million during the year from USD 4 million during 2008-09.

Inverters and power back up devices are heavy consumers of discrete semiconductor chips. The arrival of new products in this market and their targeted market presence ensures incremental demand for discrete semiconductors.

Weighing Scales

- Avon Corporation, the company that manufactures weighing scales, is likely to expand its capacity by setting up a new plant at Baddi, Himachal Pradesh. It has plans to invest USD 28 million in the unit. The company has also launched digital kitchen scales - AKD 801 to be sold at USD 27 and AKD 802 to be sold at USD 22. Both the weighing scales have a weighing capacity of up to three kilograms and a digital icon placed on the machine alarms if overloaded. They have a manual off-function and a tempered safety glass platform.

Induction Cooker

- Padmini Appliances has launched an ISO-certified induction cooker in Kerala which is a patented product of the company and is priced between USD 67 to 107.

CFL and LED

The CFL replacement scheme has got registered under the CDM of the Kyoto Protocol as the world's largest carbon credit project. It is expected to drive the energy efficient lighting market in India, driving a close competition among CFL manufacturers and investors. The government is also simultaneously working to promote LED technology which is said to be the future of lighting.

Some of the recent developments in this market are:

- Havells is expected to re-launch 'Sylvania' brand in India by investing USD 27 million in marketing and network expansion this year, 17 years after it was discontinued.
- Kerala State Electricity Board (KSEB) has started distributing two 14 watts CFL bulbs to 7, 500, 000 households in the state at subsidised rates.
- Under the CDM project, 60- and 100- watt domestic incandescent bulbs will be replaced by 11-25-watt CFLs. Currently, 1, 400, 000 CFL bulbs have already been distributed, including approximately 400, 000 bulbs in Yamunanagar in Haryana, 350, 000 in Vishakhapatnam in Andhra Pradesh and 400, 000 in the Rajnandgaon district of Chhattisgarh.
- Surya Roshni has launched its CFL lamps in Kerala. These lamps are made using the PDT and PH+ technology and have an in-built stabilizer to control voltage fluctuations. They are priced in the range of USD 2 to 3.

- The government is planning to propel LED lamps, the way CFLs were pushed in the market. A core committee on adoption of LED lighting in India, constituted by the National Manufacturing Competitiveness Council, has recommended adoption of CFLs instead of LED lamps.
- RIL Solar Group has implemented power plants in R K Khanna Tennis Complex, solar LED street lights and garden lights in the Commonwealth Games Village in New Delhi.
- The Ajanta Group is also focusing on LED lights and is expected to set up a manufacturing plant of USD 222 million in Kutch in the state of Gujarat.

Others

The Others segment covers Smart Cards, Medical Devices and Aerospace & Defense (A&D) applications. All these three segments are strong consumers of semiconductors and hold immense promise for both the semiconductor TM and TAM. Highlighted below are some of the key developments in these three segments:

Smart Cards

- The department of posts plans to introduce electronic cards for payment to beneficiaries under the National Rural Employment Guarantee Scheme (NREGS) to make disbursement of funds under the scheme completely paperless and check financial irregularities. The government is also likely to open zero-deposit post office savings accounts for the beneficiaries of NREGA as well as other social sector schemes.
- Smart cards based Driving Licence (DL) and Registration Certificate (RC) will be launched shortly across the whole of Tamil Nadu. Currently, these are being issued in the three RTOs, namely Chennai South, Cuddalore and Sivagangai, for the past two years. A tender has been floated to identify a private player to implement the scheme across the whole of Tamil Nadu.
- Co-operative Milk Producers Union has launched smart cards based milk cards to ease the procedural formalities for regular Aavin customers. Currently, the milk consumers stand in long queues to fill up the requisition form furnishing details such as name, address, kind and quantity of milk required and the booth where milk would be procured, etc. The smart card based milk cards will take care of all this information and the customers need not fill up forms every month.

Medical Devices

Healthcare infrastructure expenditure in India is expected to reach USD 14 billion by 2013. The key drivers for this segment are new technologies, the growth of hospital chains and increased government spending. The Indian Medical Device market comprises of 700 manufacturers who produce a gamut of products that include medical disposables, diagnostics and electronics amongst others. Currently, the market demand is predominantly met by imports. However, there is a lot of impetus being given to locally manufactured equipments. Some of the developments in this market are:

- Intel is currently working with local Original Equipment Manufacturers (OEMs) on developing next generation medical devices for India like portable X-ray machine, portable ultra sound device and new range of pathology lab devices. The devices such as X-ray machines, CT scan and MRI have historically been based on Intel embedded chip.

- GE Healthcare recently launched the MACi, a portable electrocardiogram (ECG) machine that weighs less than one kilogram and runs on a battery enabling ECGs at just USD 0.20 each, compared with around USD 50 currently.

Aerospace & Defense

- Defense Land Systems India (DLSI), a Mahindra and BAE Systems joint venture company was declared operational this quarter. The company's existing business includes proven products such as the up-armoured Scorpio, the Axe, the Marksman and the Rakshak. The first new product produced by the JV, the Mine Protected Vehicle India (MPVI) was launched in February this year. In addition to expanding the existing vehicle business and increasing its capabilities, DLSI will play an important role in the BAE Systems bids. This would include a number of artillery programmes such as FH77 B05 for the towed 155mm 52cal howitzer requirement. The company is expected to become a national centre of excellence for design, development, manufacture, final assembly, integration and test of artillery systems in support of the Indian Army's Field Artillery Rationalization Plan.

Appendix

Definitions

Total Market (TM): The TM volume for a particular end use product (say handsets) represents the total sales units for a specific year. In other words TM represents the total local consumption of a said product in that year. It therefore includes imports; basically volume of local sales irrespective of whether it was manufactured in India or not.

Total Available Market (TAM): TAM volume for an end use product (say handsets), on the other hand, represents the total number of units manufactured and/or assembled in the country in the study year. In other words, TAM represents the locally manufactured (includes EMS activity) + locally assembled CKD units and therefore will include even export units manufactured in the country.

This TM and TAM volume for a particular end use product (say handsets) are then multiplied with the eBoM (semi eBoM per handset) to arrive at the semiconductor TM and TAM revenues for that product (handsets).

Total Market (TM) for End User Industries: Total unit production (excluding assembly) and imported units (all forms – SKD, CKD or complete product)

Total Available Market (TAM) for End User Industries: Total unit production (excluding assembly) and CKD imported units (to represent assembly activity in India)

Abbreviations

A/V Player	Audio/Visual Player
AC	Air Conditioner
ASSP	Application Specific Standard Product
BWA	Broadband Wireless Access
CDI	Capacitor Discharge Ignition
CDMA	Code Division Multiple Access
CDM	Clean Development Mechanism
CFL	Compact Fluorescent Lamp
EMS	Electronics Manufacturing Service
GSM	Global System for Mobile
INR	Indian Rupees
IT/OA	Information Technology/Office Automation
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MPPT	Maximum Power Point Tracker
NREGS	National Rural Employment Guarantee Scheme
R&D	Research & Development
TAM	Total Available Market
TFT	Thin Film Transistor
TM	Total Market
TV	Television
UPS	Uninterrupted Power Supply
USB	Universal Serial Bus
USP	Unique Selling Proposition

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