

Indian PCB scenario

- Indian PCB Market size
- PCB Demand Scenario
- PCB Usage practices
- PCB Supply Scenario

Indian PCB Market Size

FY'10

All figures in INR Crores



All figures have been rounded off

Total Indian PCB Market Size = INR 4000 crores

Imports



Imports come mainly from China, Taiwan, Hong Kong, Korea and the US. The import prices are almost at par with domestic prices with difference narrowing down to just 5-8%. **The imports are largely due to huge demand-supply gap.** However, domestic prices in medium volumes are competitive and do not face any threat from imports.

Exports



India is exporting about 24 percent of its production to the US, Germany, Malaysia, Austria, Belgium, Netherlands, the UK, Italy, Spain, Thailand and New Zealand. India exports single-side, double-side, and multilayer PCBs.

Domestic



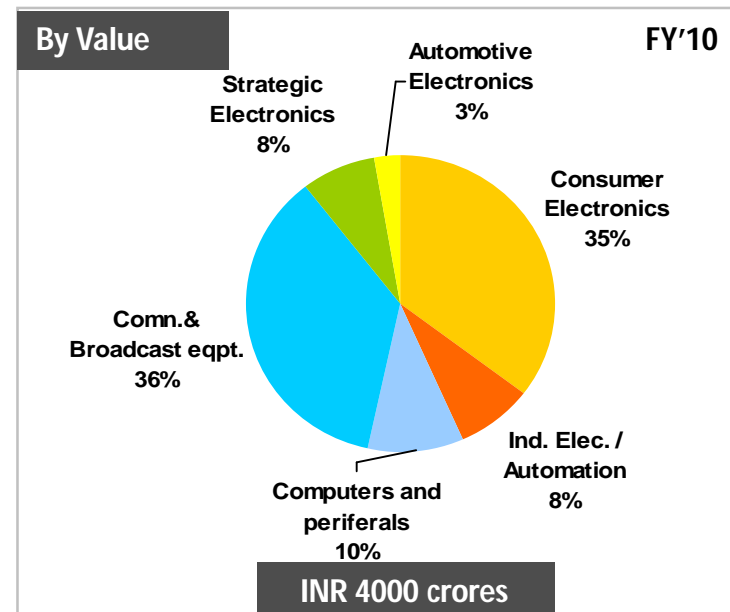
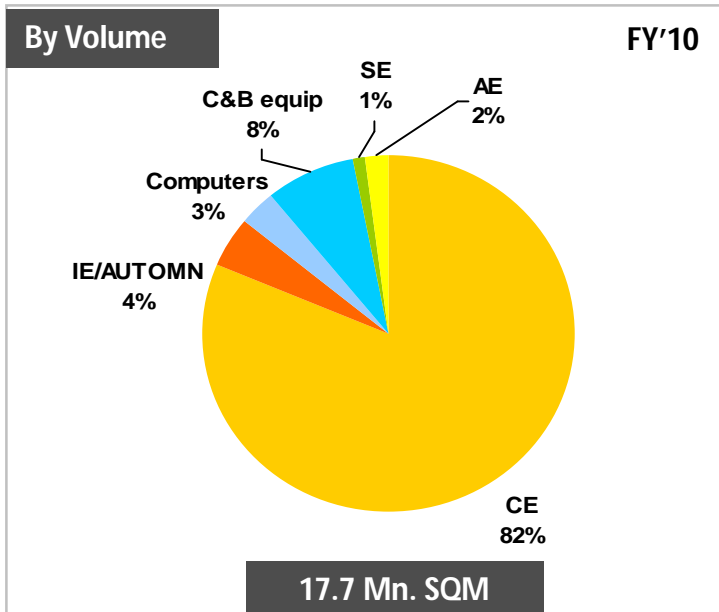
PCB manufacturers in India mostly cater across electronics applications in India except motherboards, mobiles and high-end telecom equipment.

An impressive 17% CAGR growing PCB demand

Domestic Demand		Volume ('000) SQM						
S/N	Item	FY'10 2009-10	FY'11 2010-11 (E)	FY'12 2011-12 (E)	FY'13 2012-13 (E)	FY'14 2013-14 (E)	FY'15 2014-15 (E)	CAGR
1	Consumer Electronics (CE)	14,470	17724	21800	26800	32500	38350	17.64%
2	Industrial Electronics/ Automation (IE)	731	790	850	950	1050	1150	7.84%
3	Computers and peripherals	533	580	630	685	730	780	6.55%
4	Comn. & Broadcast eqpt. (C&B Equip)	1,570	1950	2440	2930	3550	4250	18.05%
5	Strategic Electronics (SE)	177	185	195	200	210	220	3.69%
6	Automotive Electronics (AE)	300	360	440	530	625	720	15.71%
	Total	17,780	21589	26355	32095	38665	45470	17.00%

- The market demand is expected to grow to over 45Mn SQM by 2014 from existing 17.7Mn SQM at a CAGR of 17%.
- The market is fairly large and there is no dependence on single or few suppliers or customers. Linaks will be able to encash this opportunity in the Domestic market.

PCB Demand



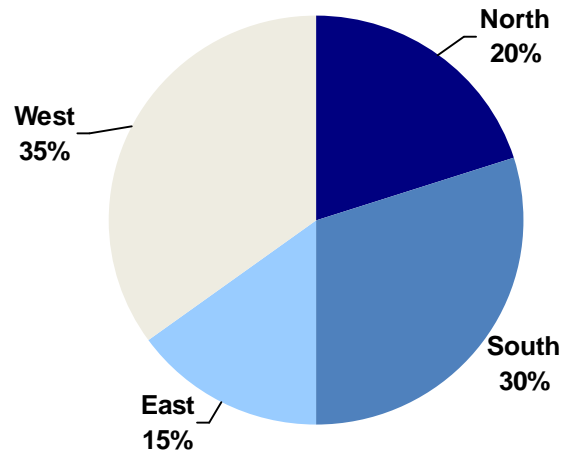
- The main demands for PCBs come from consumer, industrial, and automotive electronics markets, as well as from Power & telecommunications.
- PCB manufacturers in India mostly caters to the small to medium volumes across all sectors.
- The mobile phone, PC and communication technology sectors which are biggest consumers of PCBs still rely a lot on imports.

PCB Usage Practices in India

FY'10

By Region

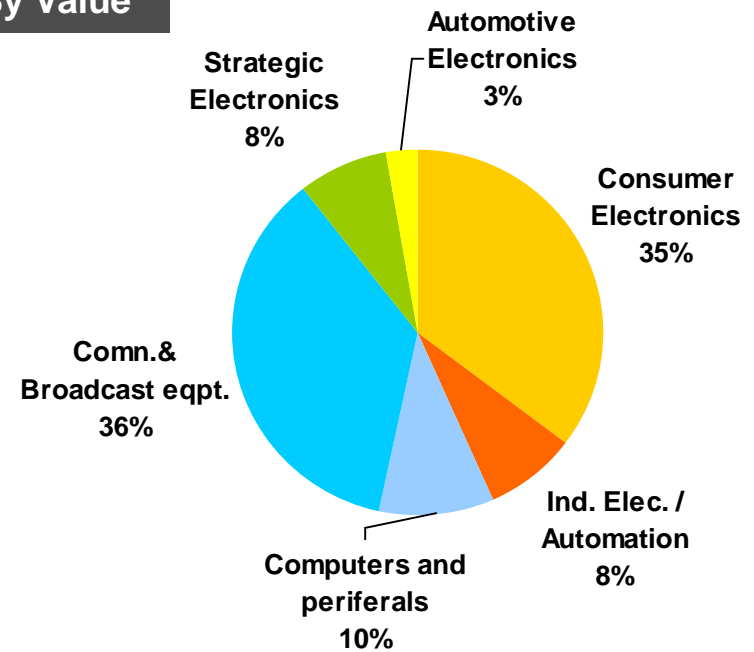
By Volume



17.7 Million Sq.m

By type of Application

By Value

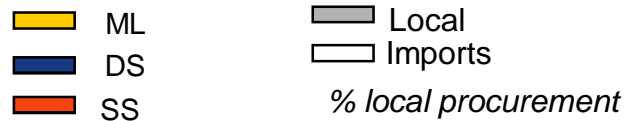


INR 4000 Crores

PCB usage across sub-segments (1/2)



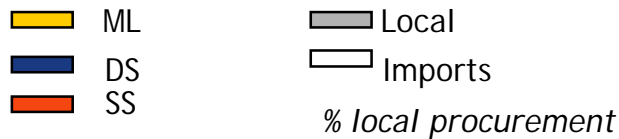
Segment	Demand in k Sqm	Type of PCB used	Procurement	Key customers	Segment Growth
UPS - APC	300+	85% DS, 15% ML	0% Local, 0% Imports	APC	18%
Mobile phones	200+	100% ML	0% Local, 0% Imports	Nokia, Motorola	28%
Energy meters	140+	5% SS, 85% DS, 10% ML	81% Local, 0% Imports	HPL, Elymer, Havell	20%
Set top boxes	120+	68% DS, 32% ML	0% Local, 0% Imports	Thomson, Humax	18%
LCD monitors	50+	14% SS, 86% ML	3% Local, 0% Imports	Samsung, LG, HCL	30%
Mother boards	40+	100% ML	0% Local, 0% Imports	Intel, Asus, Kobian	
Inverter	45+	100% DS	97% Local, 0% Imports	Luminous, Su-kam	20%
UPS - Others	50+	43% SS, 40% DS, 17% ML	67% Local, 0% Imports	Numeric, Emerson	13%
ECU	30+	100% DS	0% Local, 0% Imports	Denso, Bosch, Delphi	20%



PCB usage across sub-segments (2/2)



Segment	Demand in k Sqm	Type of PCB used	Procurement	Key customers	Segment growth
Microwave	22+			LG, Samsung	20%
LCD TVs	20+			LG, Samsung	50%
Speedometers	8+			Pricol, Siemens VDO	25%
Combination Switches	7+			Delphi	25%
DC Power	5+			Tyco, Amara Raja	15%
Climate control	5+			Visteon, Subros	25%
Security system	3+			Autocop, Minda	30%
Power window	1+			Anand	20%



Geographical presence of key suppliers

Competition	India locations			International locations
	Manufacturing	Marketing offices	Design/ prototyping	Marketing offices
AT&S	<input type="checkbox"/> Nanjangud	<input type="checkbox"/> Bangalore	<input type="checkbox"/> Bangalore	<input type="checkbox"/> Across the world
Shogini	<input type="checkbox"/> Pune	<input type="checkbox"/> Pune, Mumbai. Resident engineers across 6 other locations	<input type="checkbox"/> Pune	<input type="checkbox"/> None
CIPSA RIC	<input type="checkbox"/> Doddaballapur	<input type="checkbox"/> Doddaballapur	<input type="checkbox"/> None	<input type="checkbox"/> None
CSIL	<input type="checkbox"/> Gandhinagar	<input type="checkbox"/> Delhi, Mumbai, Bangalore, Chandigarh, Chennai, Hyderabad.	<input type="checkbox"/> Gandhinagar	<input type="checkbox"/> USA
Genus	<input type="checkbox"/> Gandhidham	<input type="checkbox"/> Delhi	<input type="checkbox"/> None	<input type="checkbox"/> None
Sulakshana	<input type="checkbox"/> Hyderabad	<input type="checkbox"/> Hyderabad	<input type="checkbox"/> None	<input type="checkbox"/> None
Ascent	<input type="checkbox"/> Hosur	<input type="checkbox"/> Hosur	<input type="checkbox"/> None	<input type="checkbox"/> None
Epitome	<input type="checkbox"/> Ahmednagar	<input type="checkbox"/> Mumbai, Pune, Delhi	<input type="checkbox"/> None	<input type="checkbox"/> None
Fine-line	<input type="checkbox"/> Mumbai	<input type="checkbox"/> Mumbai	<input type="checkbox"/> None	<input type="checkbox"/> USA
Micropack	<input type="checkbox"/> Bangalore	<input type="checkbox"/> Bangalore, Delhi, Hyderabad	<input type="checkbox"/> Bangalore	<input type="checkbox"/> None
Meena Circuits	<input type="checkbox"/> Baroda	<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> USA
Garg Electronics	<input type="checkbox"/> Panchkula	<input type="checkbox"/> Delhi, Chandigarh	<input type="checkbox"/> None	<input type="checkbox"/> None
Sahasra Electronics	<input type="checkbox"/> Delhi	<input type="checkbox"/> Delhi	<input type="checkbox"/> None	<input type="checkbox"/> None
Precision Electronics	<input type="checkbox"/> Delhi NCR	<input type="checkbox"/> Delhi	<input type="checkbox"/> None	<input type="checkbox"/> None

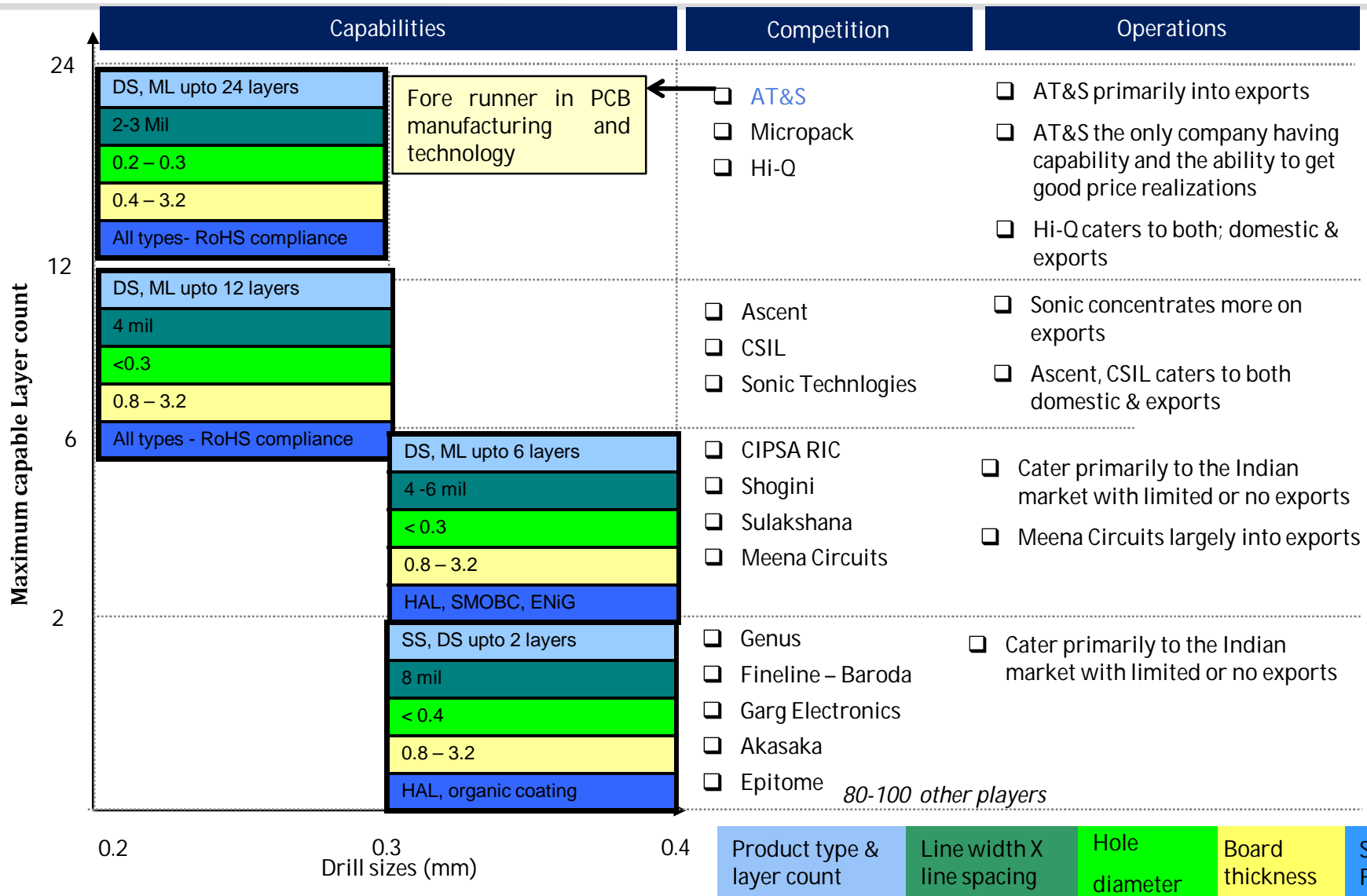
Competitive scenario – Indicative installed capacities

All figures in ,000 Sq.Mts

Sr. No.	Company	Total Capacity	DS	MLB
1	CIPSA RIC	560	316	144
2	AT&S	525	150	375
3	Epitome	240	180	60
4	CSIL	210	150	60
5	Meena Circuits	144	108	36
6	Akasaka	180	180	0
7	Shogini	140	120	20
8	Ascent	120	96	24
9	Genus Electrotech	100	100	0
10	Sonic technologies	102	72	30
11	Hi-Q Electronics	82	34	48
12	Sulakshana Circuits Ltd	70	40	30
13	Fine-line, Baroda	42	36	6
14	Fine-line, Mumbai	40	28	12
15	Micropack	25	10	15
16	BLG	60	60	0
17	Others	400	400	0
	Total	2940	2080	860

Single side capacities have not been highlighted as that's not our focus

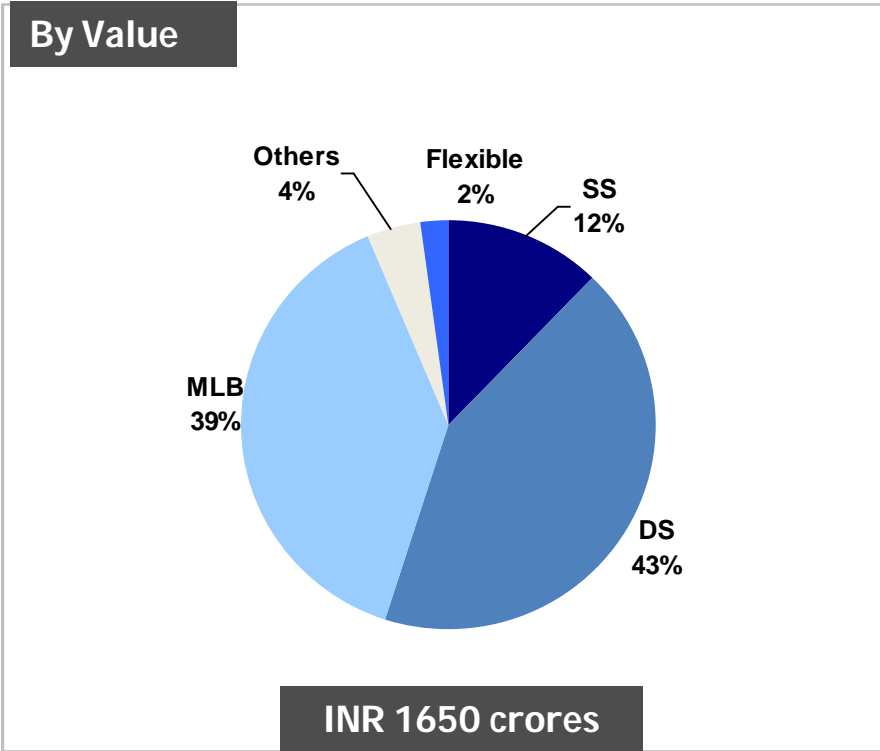
Competitive scenario – Technical capabilities



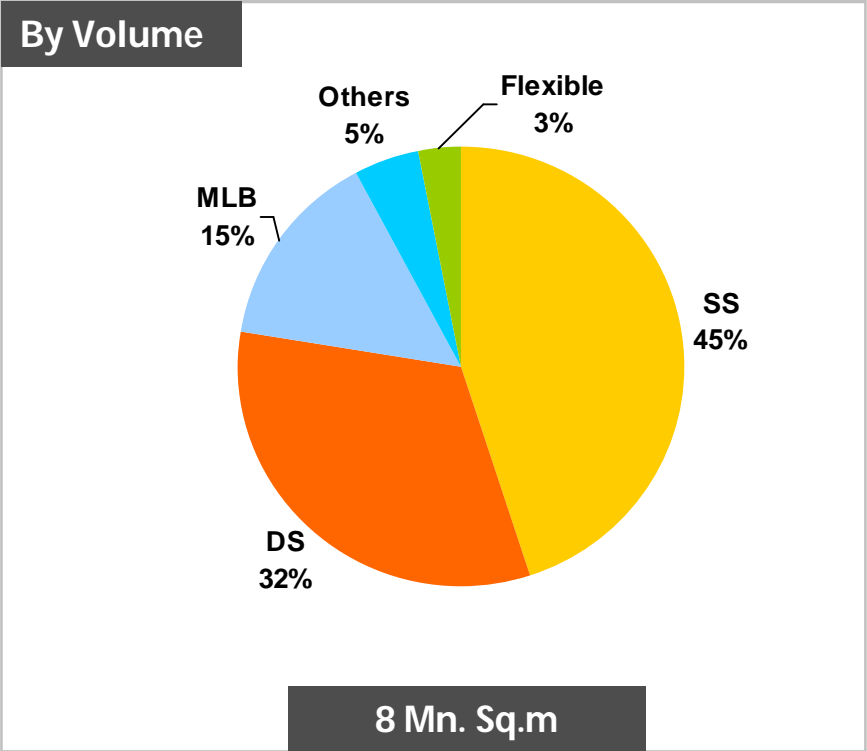
PCB supply scenario



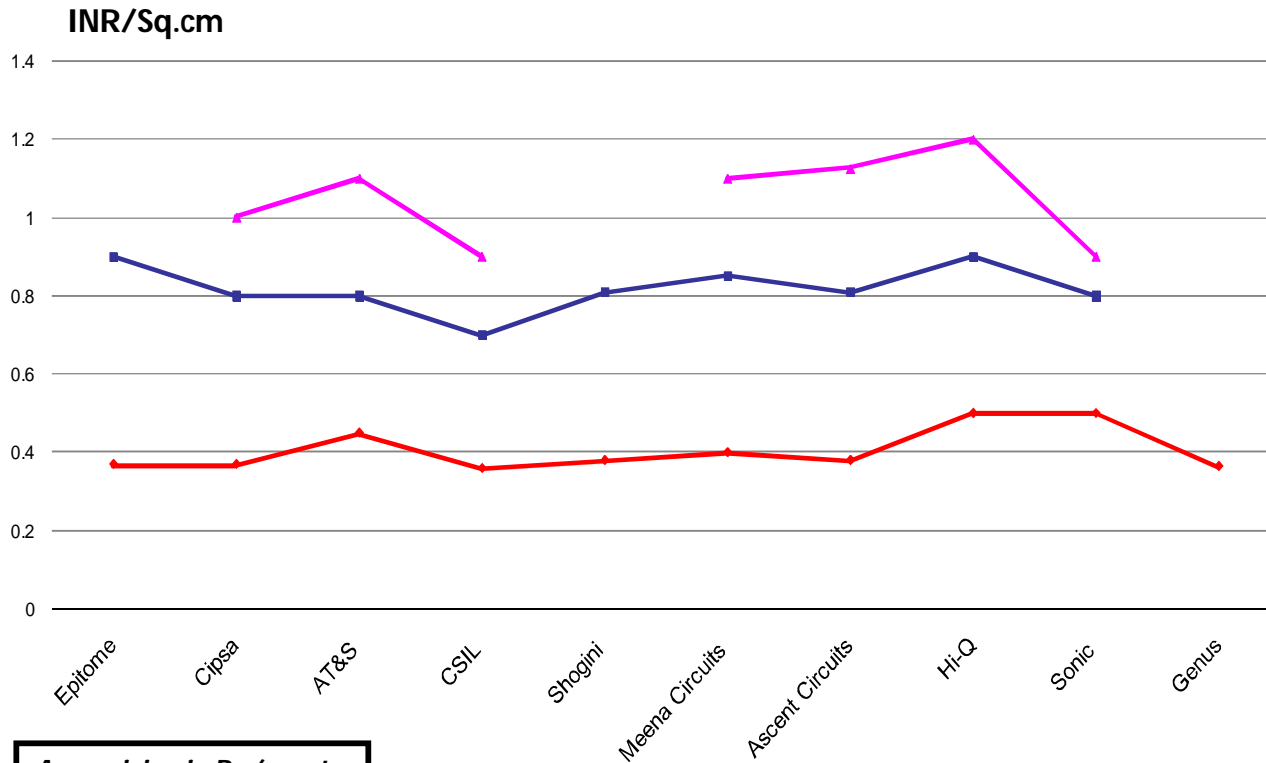
By type of Board FY'10



By type of Board FY'10



Competitive Pricing



- Average price for the following specifications
 - Board thickness: 1.6 mm
 - Line width/ space: 0.15 / 0.15mm
 - Surface finish: HAL / ENIG
 - Laminate material: FR 4
- Credit period of 30 - 45 days common in the industry
- Lead time for delivery – 3 to 4 weeks
 - 4 - 7 days for prototype PCBs

Avg. pricing in Rs./sq.mt
 DS : 0.40
 ML-4 : 0.75
 ML-6 : 1.00

— DS — ML - 4 — ML - 6