



WECC Global PCB Production Report For 2013

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A Product of the Partnership among the WECC Member Associations
on Behalf of their Members in the Electronic Circuits Industry Worldwide



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ABOUT THE WECC GLOBAL PCB STATISTICAL PROGRAM

Development Team

The World Electronic Circuits Council (WECC) is a strategic partnership formed in 1998 by the major industry associations serving member companies in the global electronic circuits industry. Its purpose is to increase the global influence and effectiveness of its member organizations for the benefit and improvement of the industry. The member associations cooperate on standards, market research, marketing, resource development, environmental issues, world trade, and economic and political affairs.

The member organizations of WECC formed a working group in 2005 to pool their statistical resources and produce a global statistical report on printed circuit board (PCB) production for the benefit of their members. This group became the WECC Statistics and Market Committee.

The following individuals contributed to this report and represent their respective associations on the WECC Statistics and Market Committee:

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Please contact the representative at your association with any questions about the report or suggestions for improving this program.

Availability

The *WECC Global PCB Production Reports* are available only from these participating associations to their members. The reports are not available for sale.

Methodology

The *WECC Global PCB Production Report* includes estimates of PCB production by country or region based on the data collected by the WECC organizations from their member PCB

companies. The estimates in these reports may differ from estimates published by other sources due to differences in methodology and sources. No source of data on worldwide PCB production can claim to be 100 percent accurate. There are only estimates based on data collected from representative samples of the companies in the industry.

WECC has published its *Global PCB Production Reports* since 2005. The reports are published annually. The data are collected by the associations and reported here in local currencies so that real growth rates can be shown. For the sake of comparability, all of the estimates are also reported in U.S. dollars. These nominal values are not adjusted for inflation or for fluctuations in exchange rates. Year-on-year growth rates have been adjusted for currency fluctuations. A table of average exchange rates for the period is included as an appendix to this report.

Confidentiality Policy

It is the WECC organizations' policy never to share any company-specific information with other associations (including the other WECC members) or with their member companies. Only aggregate data are shared for the compilation of this report. In this way, the WECC associations maintain complete confidentiality for all of their member companies.

Definitions

PCB production attributed to a country or region reflects the value of the PCBs produced there, regardless of where the companies are headquartered, and should not be confused with the PCB market (i.e., where PCBs are sold).

Many flexible circuit producers also offer assembly and other value-added services. Because these producers sell assembled or partially assembled boards, it can be difficult for them to separate the value of the bare circuits from total sales. The estimates for flexible circuit production in this report, therefore, may include some assembly revenue.

2013 PCB PRODUCTION VALUE

The member associations collected production data from companies producing PCBs in their countries or regions. Every effort was made to eliminate duplication between the associations' survey samples. The countries and regions included in this analysis produce approximately 99 percent of the world's PCBs, based on value.

Estimates of 2013 PCB Production in the World's Major PCB-Producing Areas

In millions of local currency

Country or Region Where PCBs Were Produced	Rigid 1-2 Sided	Standard Multilayer	HDI/ Microvia/ Build-Up	IC Substrate	Flexible Circuits	Rigid Flex	Others	Total Aggregate Data	Currency
China	12,479	81,392	28,510	4,040	28,920	1,534	24	156,899	RMB
Hong Kong	31	559	59	442	0	0	8	1,099	HKD
India	14,961	8,416	0	0	1,227	117	175	24,896	INR
Japan	101,530	158,260	66,470	198,840	81,140	10,030	29,550	645,820	JPY
South Korea	775,510	2,346,939	1,632,653	2,857,143	1,938,776	734,694	0	10,285,714	KRW
Taiwan	20,301	51,894	37,402	80,138	46,945	4,683	0	241,364	TWD
Other Asia	62,427	61,107	34,904	63,580	141,638	3,220	0	366,876	JPY
Western Europe	515	747	270	0	128	125	0	1,785	EUR
North America	300	1,791	195	16	278	105	365	3,050	USD
Central & South America	121	62	0	0	2	0	0	185	BRL
Israel & North Africa	41	20	10	0	1	32	0	104	EUR

In millions of U.S. dollars

Country or Region Where PCBs Were Produced	Rigid 1-2 Sided	Standard Multilayer	HDI/ Microvia/ Build-Up	IC Substrate	Flexible Circuits	Rigid Flex	Others	Total Aggregate Data in US\$
China	2,016	13,148	4,605	653	4,672	248	4	25,345
Hong Kong	4	72	8	57	0	0	1	142
India	256	144	0	0	21	2	3	426
Japan	1,040	1,622	681	2,038	832	103	303	6,618
South Korea	711	2,152	1,497	2,620	1,778	674	0	9,433
Taiwan	685	1,751	1,262	2,704	1,584	158	0	8,144
Other Asia	640	626	358	652	1,452	33	0	3,760
Western Europe	684	992	358	0	170	166	0	2,370
North America	300	1,791	195	16	278	105	365	3,050
Central & South America	56	29	0	0	1	0	0	86
Israel & North Africa	54	27	13	0	1	42	0	138
Global Total	6,446	22,354	8,978	8,739	10,788	1,531	676	59,512

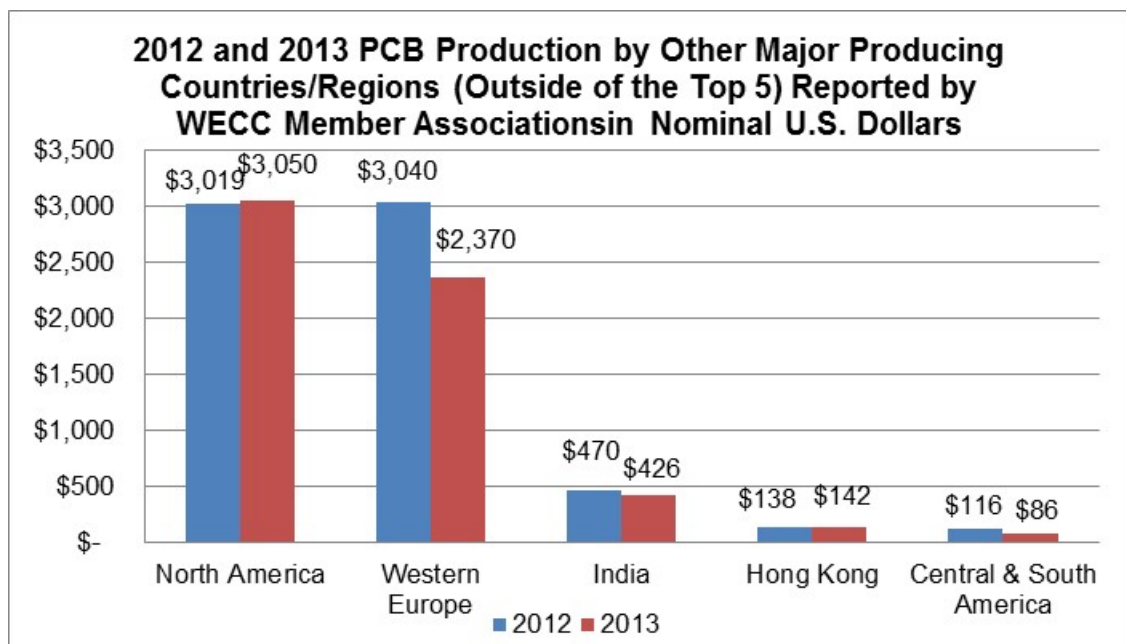
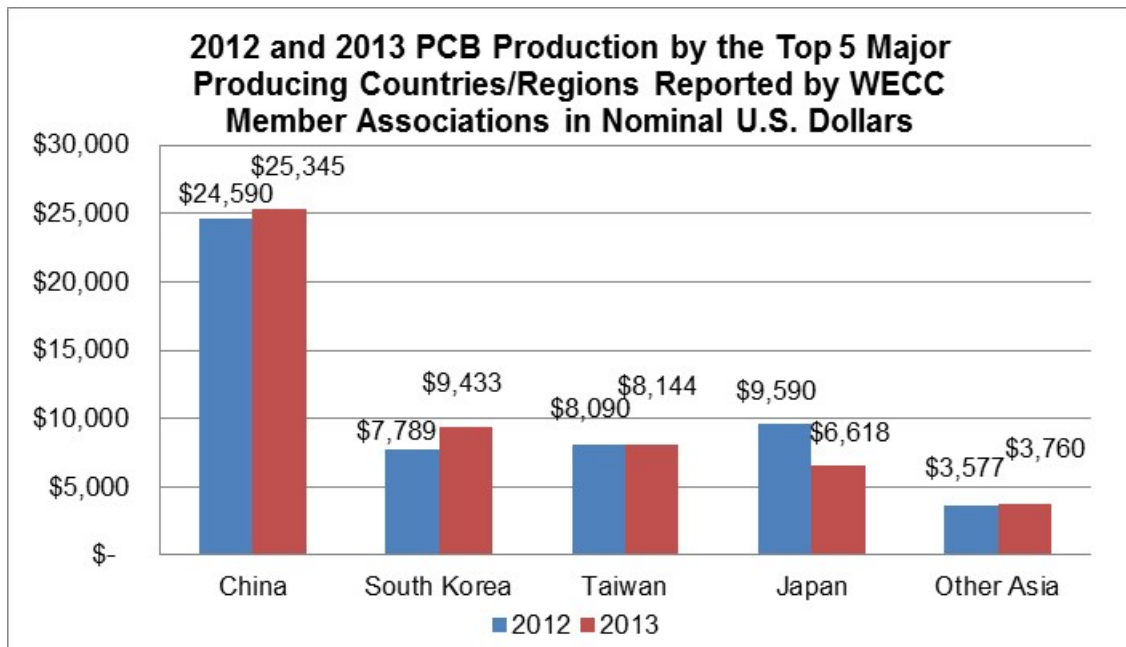
Notes:

1. Flexible circuit and rigid flex estimates may include some assembly revenue.
2. The "Others" product category includes high-performance PCBs.
3. The revenue estimates in this report are nominal and have not been adjusted for inflation.
4. Other Asia includes Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam. Other Asia data were provided by JPCA and are reported in Japanese yen. Japanese companies account for more than 70 percent of PCB production in Other Asia.
5. North American data are reported in U.S. dollars.
6. Central & South America data, provided by IPC, are reported in Brazilian real, as Brazil was the primary location of PCB production in this region.
7. Please see the appendix on exchange rates to determine the impact on amounts in specific currencies.
8. Totals may vary slightly from the sums of the numbers in the table due to rounding.

INDUSTRY GROWTH

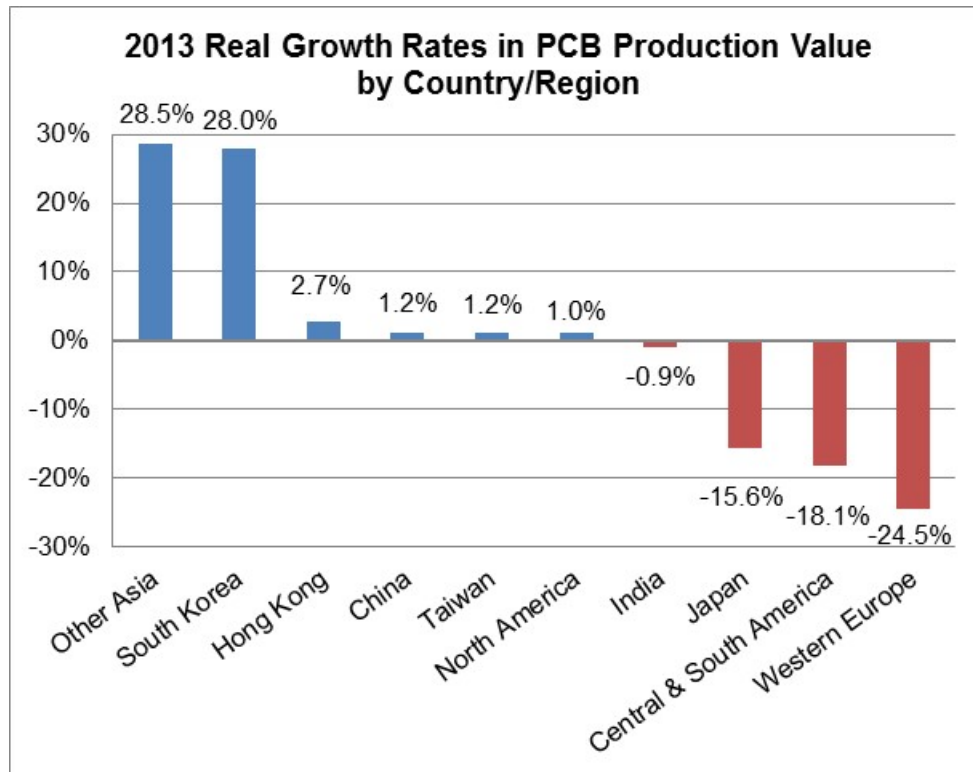
Nominal Growth by Country/Region

A comparison of 2012 and 2013 PCB production data reported by the WECC member associations shows that PCB production in 2013 increased in China, South Korea, Taiwan, Other Asia, North America and Hong Kong. Production declined in Japan, Western Europe, India, and Central and South America. These values are nominal and were not adjusted to factor out the impact of exchange rate fluctuations.



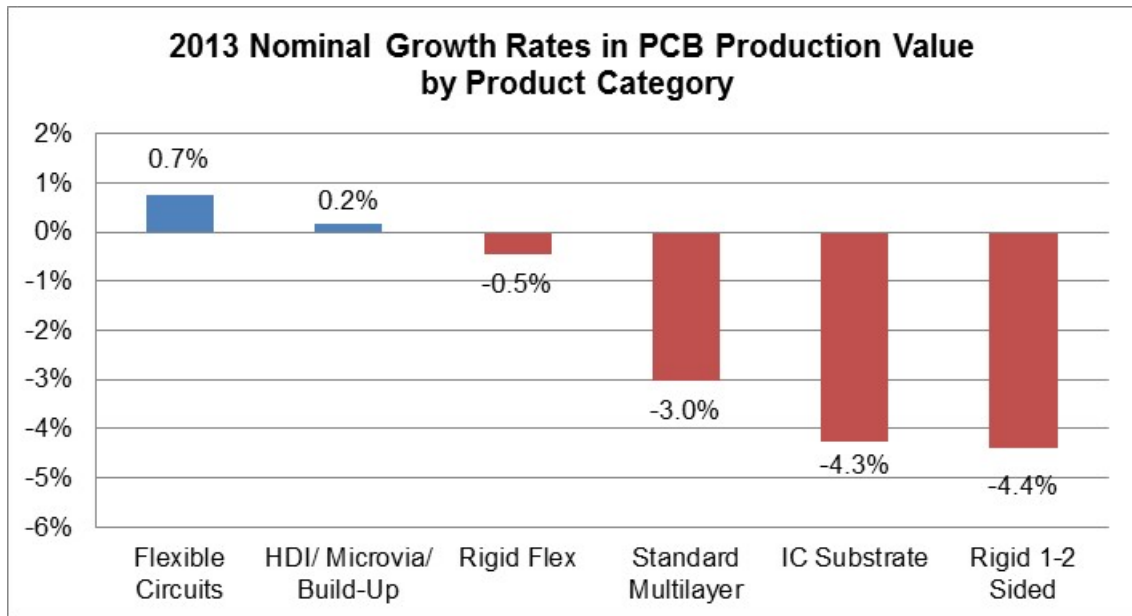
Real Growth by Country/Region

Based on a comparison of the 2012 and 2013 estimates from the WECC PCB production surveys in local currencies, worldwide PCB production increased 2.3 percent from 2012 to 2013. Other Asia and South Korea had the highest growth in PCB production of 28.5 and 28.0 percent, respectively, in real terms.



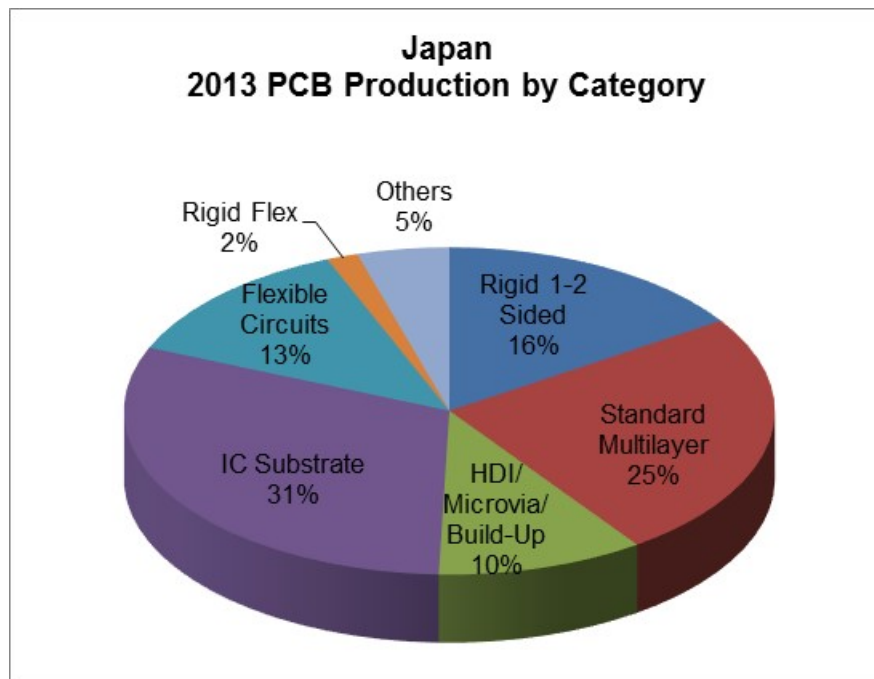
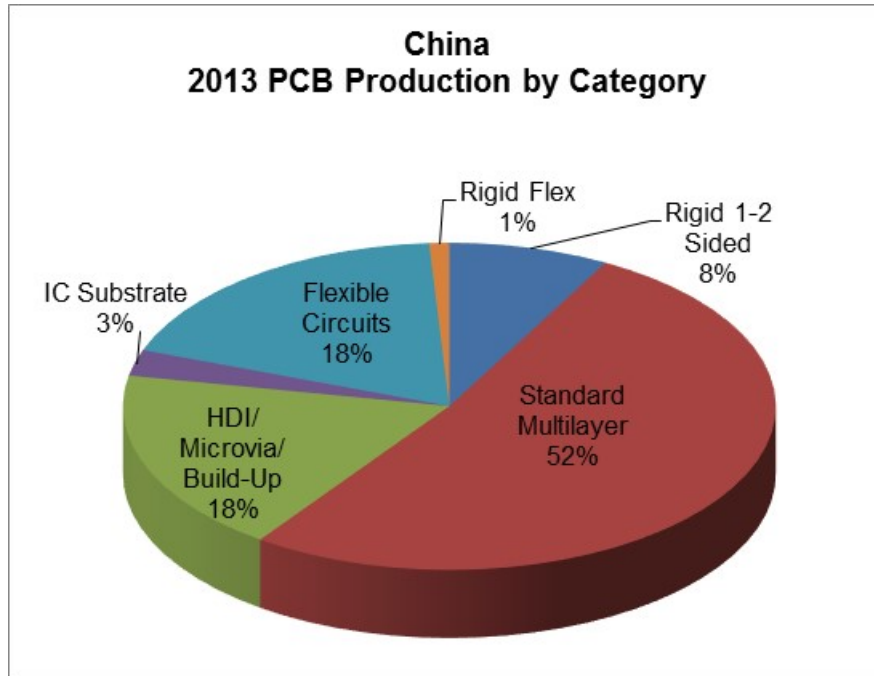
Nominal Growth by Product Category

PCB production growth was low but positive in 2013 for flexible circuits and HDI/microvia/build-up boards.

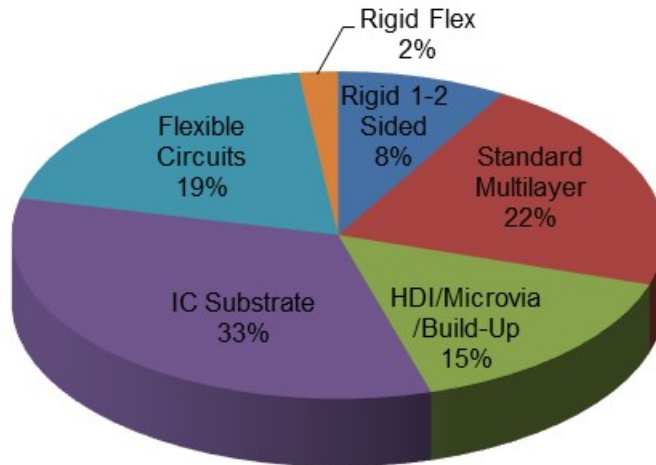


COUNTRY AND REGIONAL PROFILES

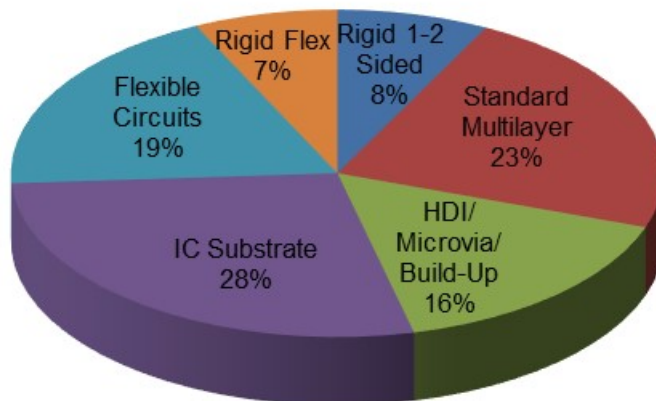
PCB Product Categories

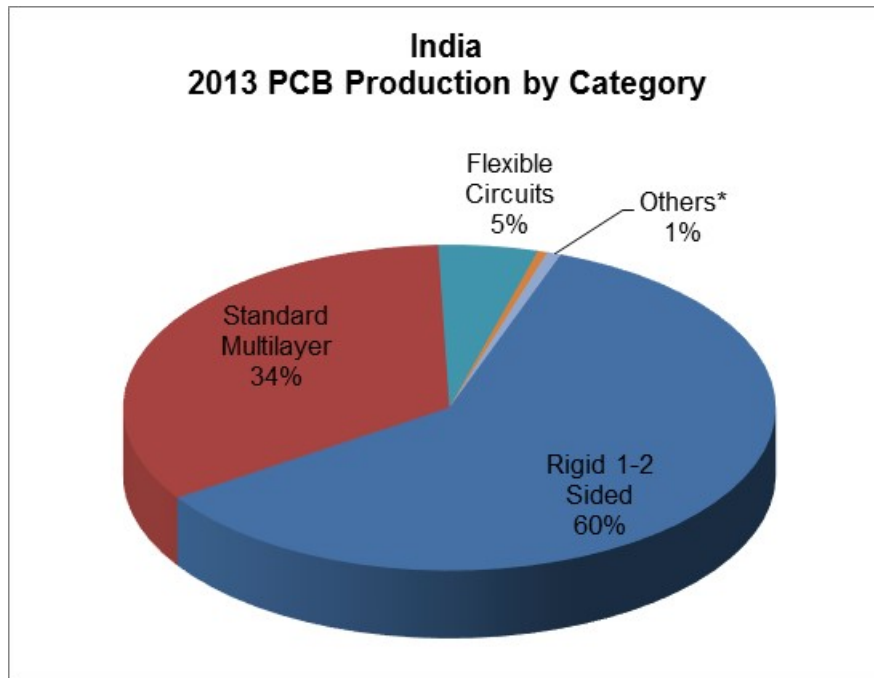


**Taiwan
2013 PCB Production by Category**

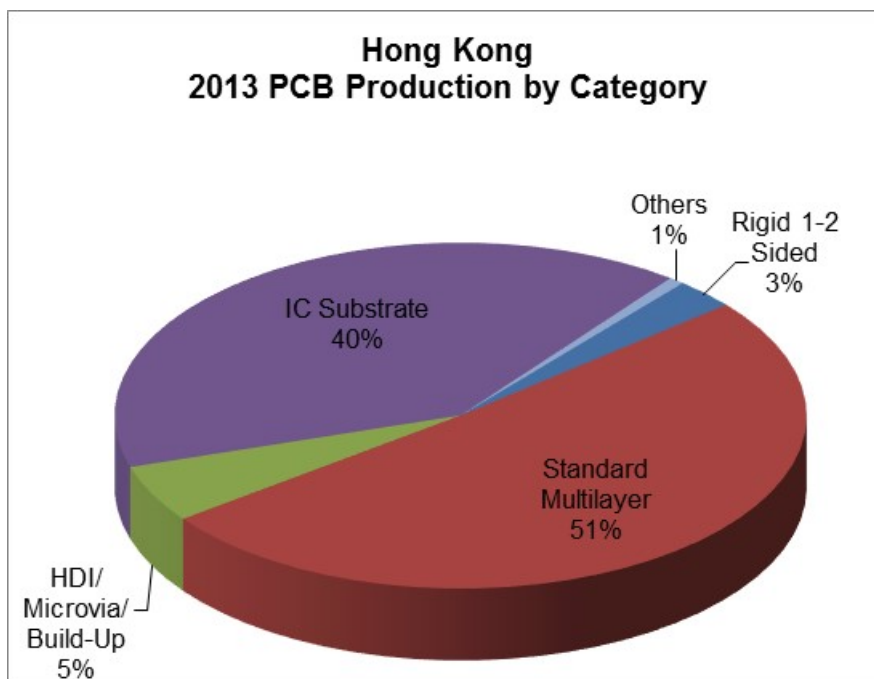


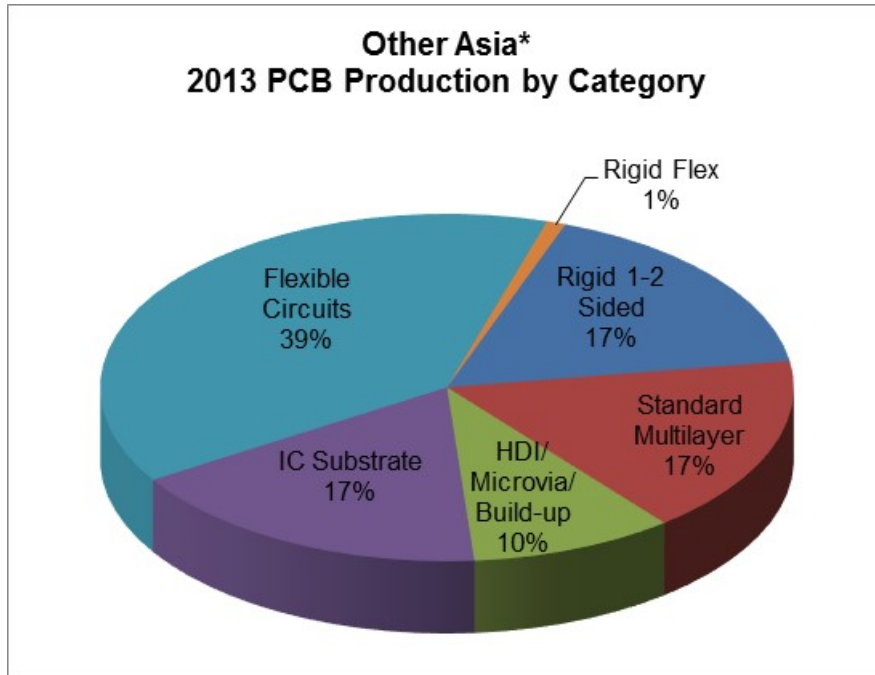
**South Korea
2013 PCB Production by Category**



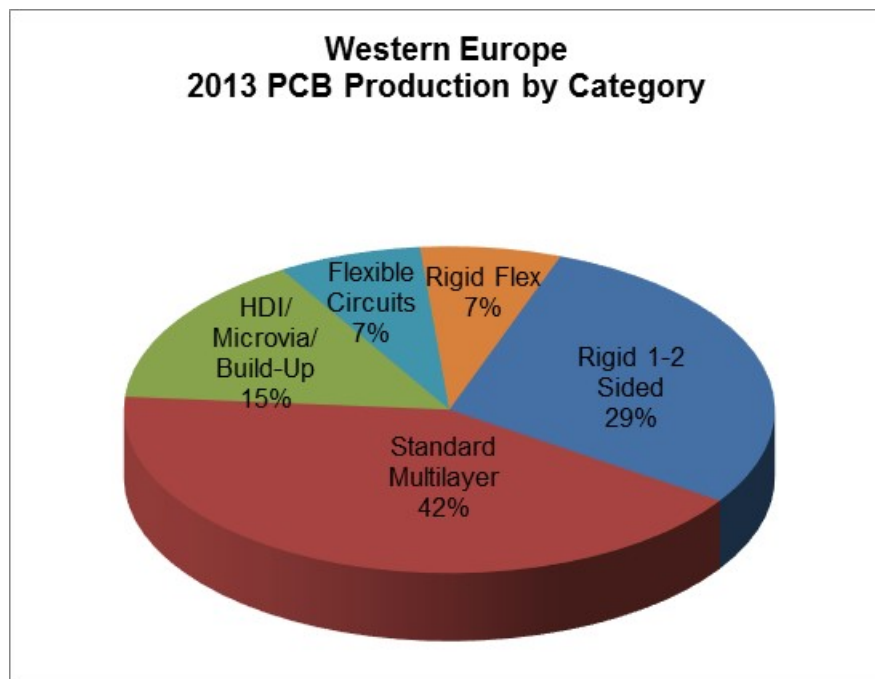


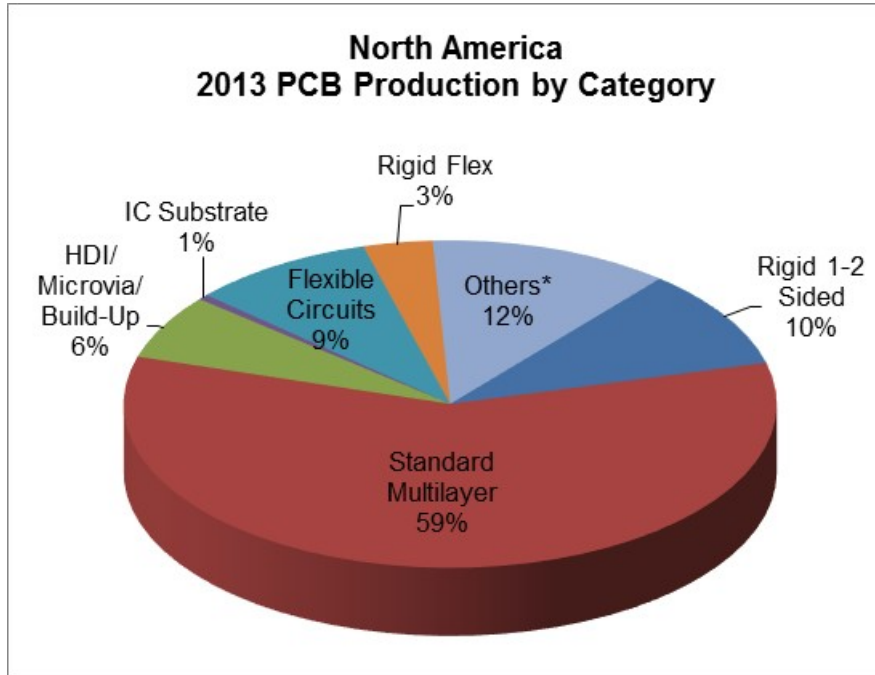
* Others: high-performance rigid boards



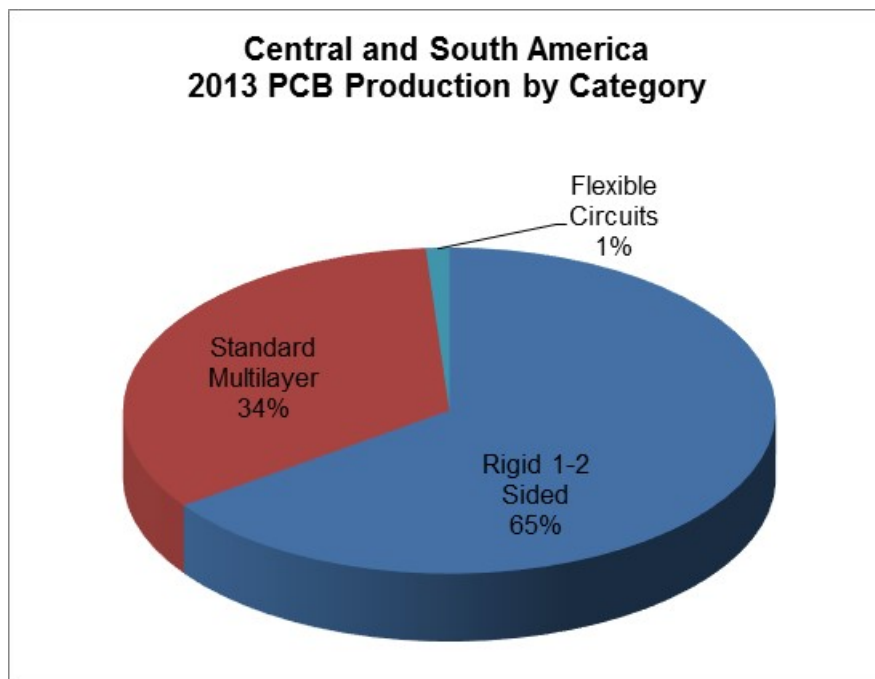


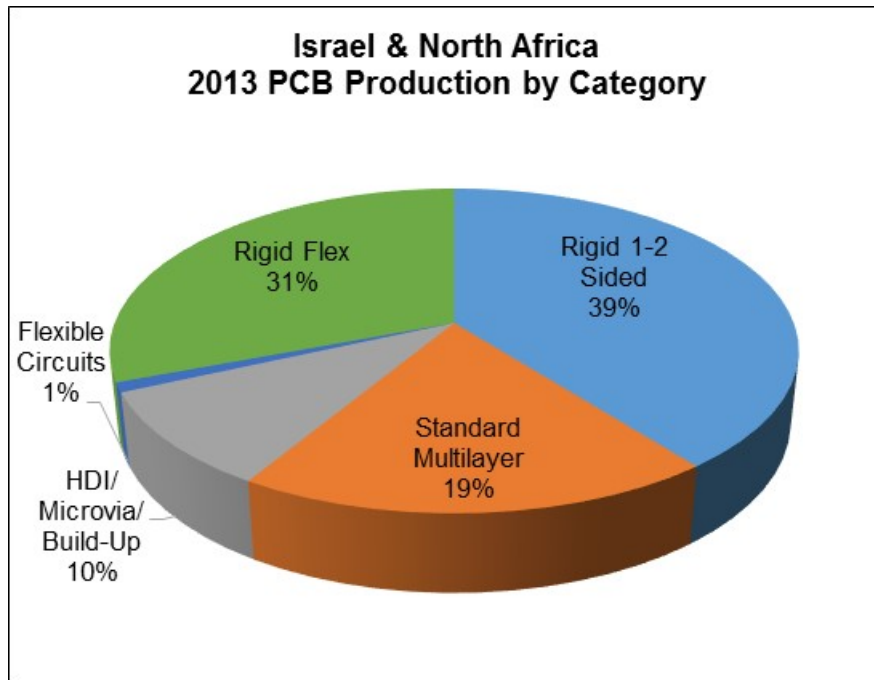
* Other Asia includes Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam.



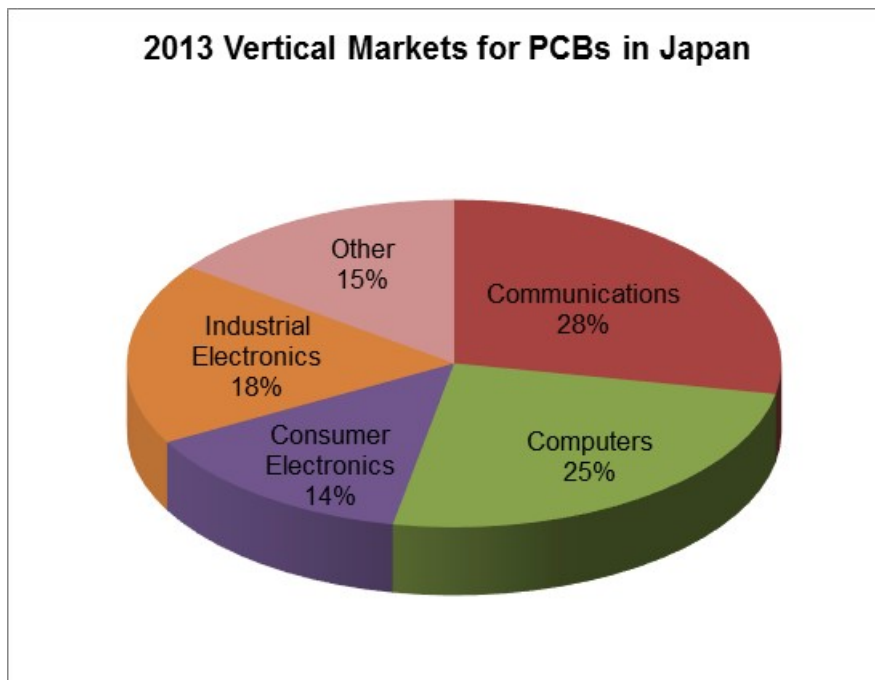
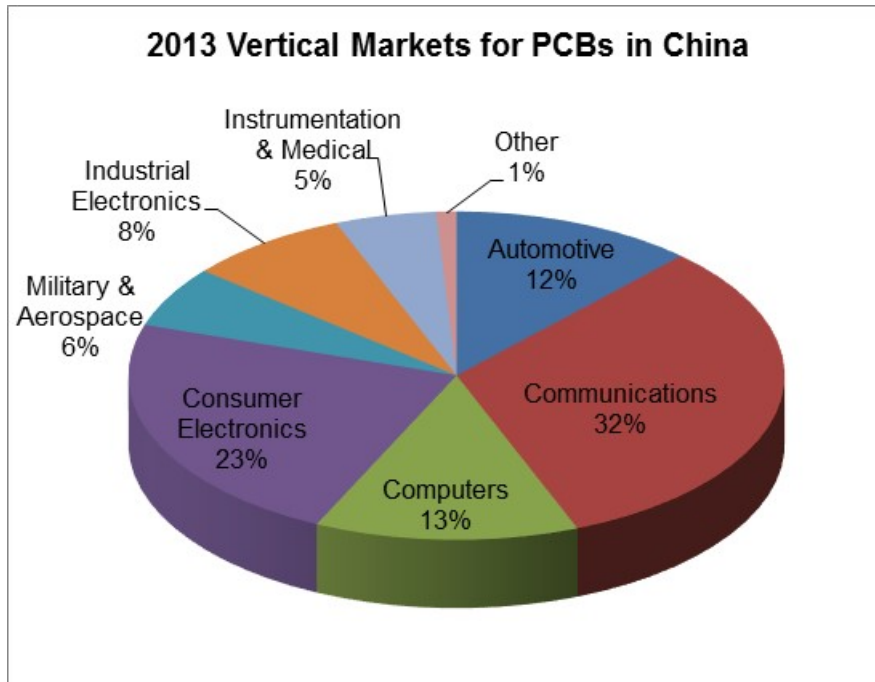


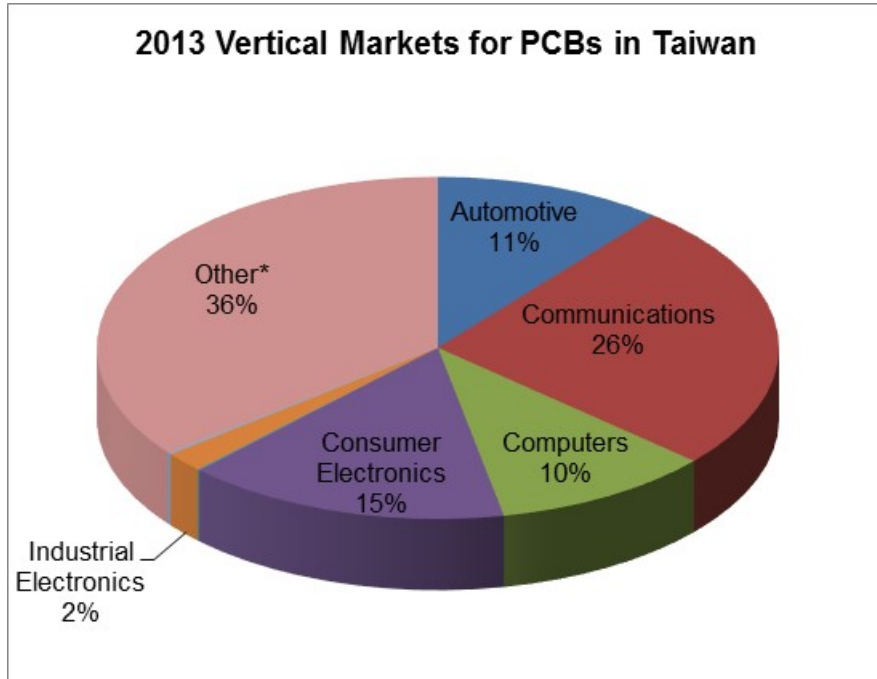
* Others: high-performance rigid boards



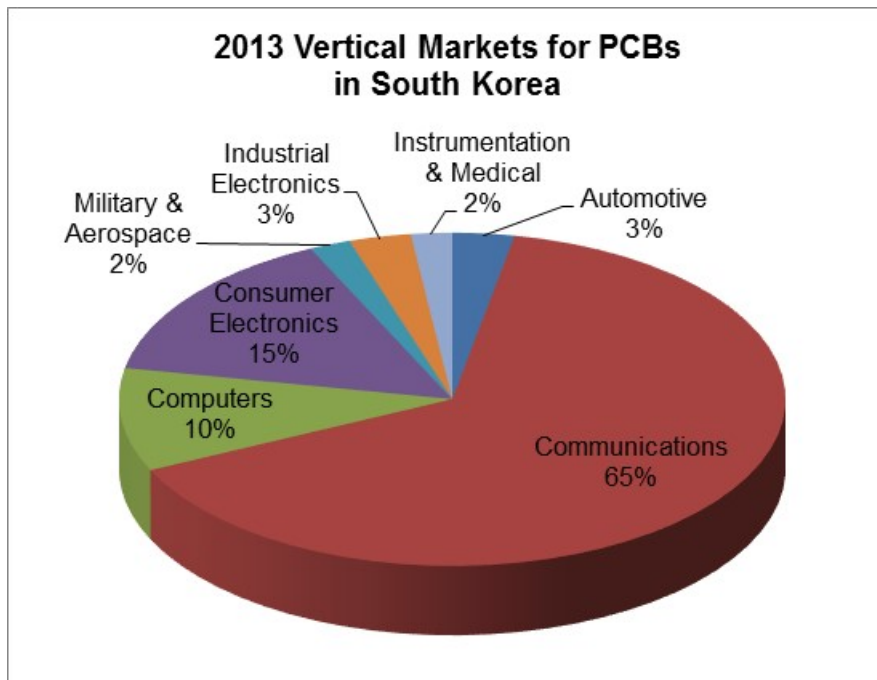


PCB Vertical Markets

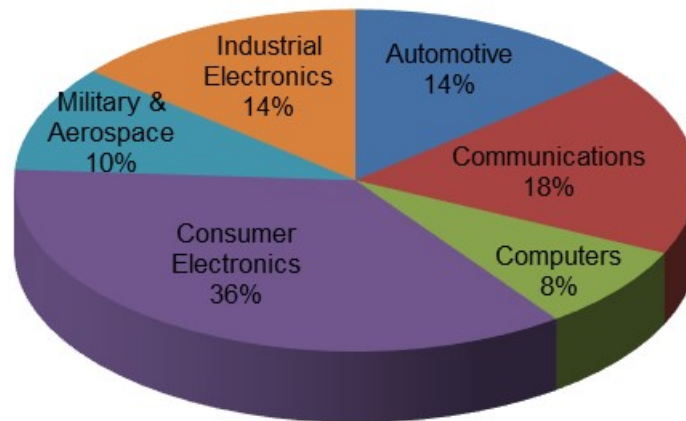




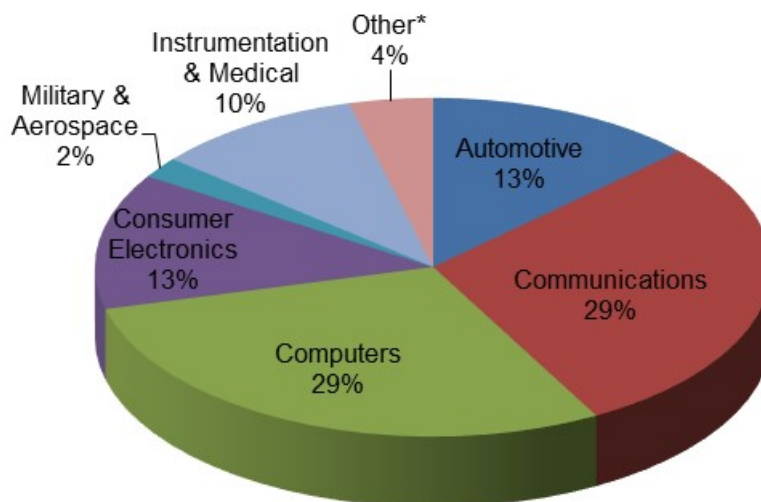
* Other: semiconductor, lighting and others



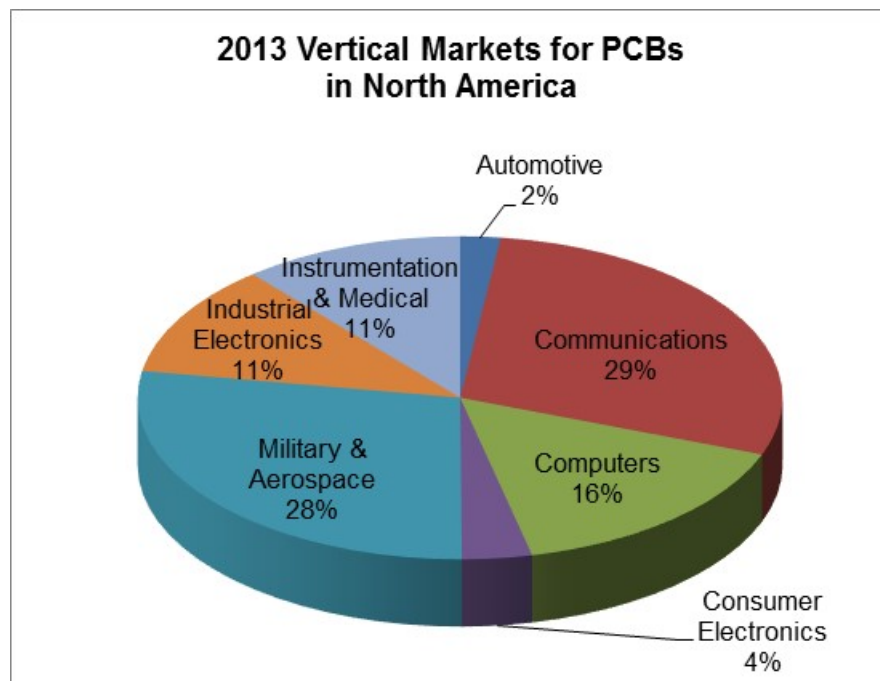
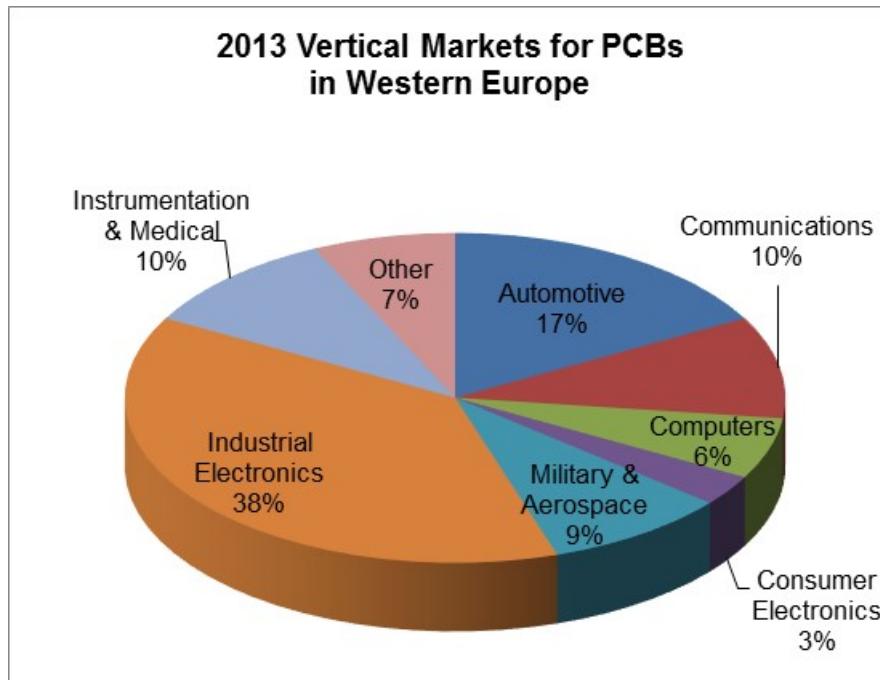
2013 Vertical Markets for PCBs in India



2013 Vertical Markets for PCBs in Hong Kong



* Other: security and lighting



APPENDIX

Average Exchange Rates for 2012 and 2013

		2012 Average Exchange Rate (=1.00 USD)	2013 Average Exchange Rate (=1.00 USD)	Currency (ISO Code)	% Change
ASIA/PACIFIC	Australia	0.9658	1.04	AUD	7.3%
	China	6.3034	6.19	CNY	-1.8%
	Hong Kong	7.7567	7.76	HKD	0.0%
	India	53.4631	58.44	INR	9.3%
	Indonesia	9329.2	10394.70	IDR	11.4%
	Japan	79.79	97.58	JPY	22.3%
	Malaysia	3.0777	3.14	MYR	1.9%
	New Zealand	1.2348	1.22	NZD	-1.2%
	North Korea	135	135.00	KPW	0.0%
	Pakistan	92.6039	100.71	PKR	8.8%
	Philippines	42.0954	42.35	PHP	0.6%
	Singapore	1.2494	1.25	SGD	0.1%
	South Korea	1123.02	1090.42	KRW	-2.9%
	Taiwan	29.4901	29.64	TWD	0.5%
	Thailand	30.909	30.65	THB	-0.8%
Vietnam	20692.7	20878.40	VND	0.9%	
EUROPE	Austria	0.78	0.75	EUR	-3.2%
	Belgium	0.78	0.75	EUR	-3.2%
	Czech Republic	19.55	19.53	CZK	-0.1%
	Denmark	5.79	5.62	DKK	-3.0%
	Finland	0.78	0.75	EUR	-3.2%
	France	0.78	0.75	EUR	-3.2%
	Germany	0.78	0.75	EUR	-3.2%
	Hungary	224.83	223.41	HUF	-0.6%
	Ireland	0.78	0.75	EUR	-3.2%
	Italy	0.78	0.75	EUR	-3.2%
	Netherlands	0.78	0.75	EUR	-3.2%
	Norway	5.82	5.88	NOK	1.0%
	Poland	3.25	3.16	PLN	-2.9%
	Portugal	0.78	0.75	EUR	-3.2%
	Russia	30.99	31.82	RUB	2.7%
	Slovakia	0.78	0.75	EUR	-3.2%
	Spain	0.78	0.75	EUR	-3.2%
	Sweden	6.77	6.51	SEK	-3.8%
	Switzerland	0.94	0.93	CHF	-1.2%
Turkey	1.80	1.90	TRY	5.8%	
United Kingdom	0.63	0.64	GBP	1.3%	
THE AMERICAS	Canada	1.00	1.03	CAD	3.0%
	Mexico	13.15	12.75	MXN	-3.0%
	USA	1.00	1.00	USD	0.0%
	Argentina	4.54	5.46	ARS	20.3%
	Brazil	1.95	2.15	BRL	10.4%
	Chile	486.39	495.04	CLP	1.8%
	Venezuela	4287.30	6035.79	VEB	40.8%
MIDDLE EAST & AFRICA	Egypt	6.03	6.84	EGP	13.3%
	Iran	12038.80	17786.90	IRR	47.7%
	Israel	3.85	3.6061	ILS	-6.3%
	South Africa	8.20	9.63	ZAR	17.5%
	Tunisia	1.56	1.62	TND	4.1%

 Source: www.oanda.com/convert/fxhistory



World Electronic Circuits Council