RESEARCH BULLETIN

IC Insights

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Samsung Jumps to #3 in 2012 Foundry Ranking, Has Sights Set on #2 Spot in 2013

Apple's application processor business still driving Samsung's foundry success, but for how long?

IC Insights' 2013 edition of *The McClean Report—A Complete Analysis and Forecast of the Integrated Circuit Industry* contains over 400 pages and 400 tables and graphs and will be released later this month.

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The 2013 *McClean Report* analyzes the top 12 IC foundries (pure-play and IDM) for 2012 (Figure 1). TSMC remained the leader; in fact, TSMC's 2012 sales were almost 4x that of second-ranked GlobalFoundries and more than 10x the sales of the fifth-ranked foundry SMIC. As shown, there were only three IDM foundries in the ranking—Samsung, IBM, and MagnaChip. Samsung was by far the largest IDM foundry in 2012 with almost 10x the sales of IBM, the second largest IDM foundry.

In 2012, Samsung almost doubled its foundry sales and surpassed UMC to become the third-largest IC foundry in the world. Moreover, IC Insights believes that the company will challenge GlobalFoundries for the number two spot in the ranking in 2013. Samsung has the ability (i.e., leading-edge capacity and a huge capital spending budget) and desire to become a major force in the IC foundry business. It is estimated that the company's dedicated IC foundry capacity reached 150K 300mm wafers per month in 4Q12. Using an average-revenue-per-wafer figure of $3,000, Samsung's IC foundry capacity currently has the potential to produce annual sales of about $5.4 billion.

In 2012, Samsung was the largest supplier of smartphones in the world by a wide margin, shipping 220 million handsets with Apple coming in second, selling 133 million iPhones. Thus, in total, Samsung and Apple represented almost half of the total worldwide smartphone shipments (750 million) last year. As a result, Samsung is enjoying a tremendous amount of synergy by supplying application processors to the largest (i.e., itself) and second largest (i.e., Apple) suppliers in the world of one of the hottest electronic system products in the world—smartphones.

As shown in Figure 1, after jumping by 82% in 2011, Samsung's foundry sales surged by another 98% in 2012, easily making it the fastest growing top-12 foundry in 2011 and 2012. It is interesting to note that

Apple's 2012 share of Samsung's total foundry sales was 89%. However, as Apple begins to engage other foundries (e.g., TSMC, GlobalFoundries, and possibly Intel) to produce its custom processors, Samsung will need to make up for these lost sales by signing on additional large-scale customers.

Top 12 2012 IC Foundries

2012 Rank	2011 Rank	Company	Foundry Type	Location	2010 Sales ($M)	2011 Sales ($M)	2011/2010 Change (%)	2012 Sales ($M)	2012/2011 Change (%)
1	1	TSMC	Pure-Play	Taiwan	13,307	14,600	10%	17,167	18%
2	3	GlobalFoundries	Pure-Play	U.S.	3,510	3,480	-1%	4,560	31%
3	4	Samsung	IDM	South Korea	1,205	2,190	82%	4,330	98%
4	2	UMC	Pure-Play	Taiwan	3,965	3,760	-5%	3,730	-1%
5	5	SMIC	Pure-Play	China	1,555	1,320	-15%	1,682	27%
6	6	Hua Hong Grace*	Pure-Play	China	627	850	36%	940	11%
7	7	TowerJazz	Pure-Play	Israel	510	611	20%	644	5%
8	8	Vanguard	Pure-Play	Taiwan	508	519	2%	582	12%
9	9	Dongbu	Pure-Play	South Korea	475	500	5%	540	8%
10	10	IBM	IDM	U.S.	430	420	-2%	435	4%
11	11	MagnaChip	IDM	South Korea	405	350	-14%	400	14%
12	12	WIN**	Pure-Play	Taiwan	221	298	35%	382	28%
—	—	Top 12 Total	—	—	26,718	28,898	8%	35,392	22%
—	—	Top 12 Share	—	—	87%	88%	—	90%	—
—	—	Other Foundry	—	—	4,017	3,972	-1%	3,918	-1%
—	—	Total Foundry	—	—	30,735	32,870	7%	39,310	20%

*Hua Hong NEC and Grace merged in 2012 (includes Shanghai Huali joint venture).
**GaAs foundry

Source: IC Insights, company reports

Figure 1

Apple and Samsung are often embroiled in a dramatic courtroom battles concerning various lawsuits and counter-lawsuits regarding system level patents. Yet, as of early 2013, Apple was still very reliant on Samsung for its advanced IC processor production for its iPad tablets, iPhones handsets, and high-end iPod portable media players. It should be noted that TSMC was working at over 100% utilization throughout the first three quarters of 2012 and essentially had no ability to allocate large amounts of leading edge IC production capacity to Apple.

One important factor that is oftentimes overlooked with regards to the Samsung/Apple IC supply relationship is the large amount of memory, both DRAM and flash, that Apple buys from Samsung, the largest memory manufacturer in the world. Since Apple is such a big memory customer, Samsung is able to "bundle" its IC offerings to Apple and deliver a cost-effective high-volume supply of leading-edge flash memory, DRAM, and application processors to the company. It should be noted

that, as of early-2013, no other foundry in the world could come close to matching Samsung's total IC supply capabilities. Thus, while Apple and Samsung battle it out in the courtroom over system level issues and hammer away at each other in the electronic systems marketplace, Apple continues to endure its "marriage of convenience" with Samsung at the chip level.

There is no doubt that Apple is looking to diversify away from being so reliant on its major system level competitor—Samsung—for the production of its advanced ICs. However, IC Insights believes this transition is likely destined to happen over a few years rather than a few quarters.

In total, the top 12 foundries in Figure 1 represented 90% of total foundry sales (IDM and pure-play) in 2012. This share is nine points higher than the 81% figure the top 12 represented in 2009 (before Samsung dramatically ramped up IC foundry production for Apple). With the barriers to entry (e.g., fab costs, access to leading edge technology, etc.) into the foundry business being so high and rising, IC Insights expects this "top 12" marketshare figure to continue to rise in the future.

Report Details: *The 2013 McClean Report*

A thorough analysis of the top IC foundries is just part of the information included in the 2013 edition of IC Insights' flagship report, *The McClean Report—A Complete Analysis and Forecast of the Integrated Circuit Industry.* The highly regarded annual study features more than 400 tables and graphs in the main report alone. A subscription to *The McClean Report* includes **free** attendance to one of *The McClean Report* half-day seminars held this month and delivered by IC Insights' President Bill McClean. *The McClean Report* seminars will be held in the following locations:

- **Scottsdale, Arizona on Tuesday, January 22**
- **Sunnyvale, California on Thursday, January 24**
- **Boston, Massachusetts Tuesday, January 29**
- **London, England Thursday, January 31**

In addition to the half-day seminar, *The McClean Report* subscription includes **free** monthly updates from March through November (including a 250+ page *Mid-Year Report*), and **free** access to subscriber-only webinars throughout the year. An individual-user subscription to the 2013 edition of *The McClean Report* is priced at $3,390 and includes an Internet access password. A multi-user worldwide corporate license is available for $6,390.

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IC Insights, Inc., based in Scottsdale, Arizona USA, is dedicated to providing high-quality, cost-effective market research for the semiconductor industry. Founded in 1997, IC Insights offers coverage of global economic trends, the semiconductor market forecast, capital spending and fab capacity trends, product market details, and technology trends, as well as complete IC company profiles and evaluations of end-use applications driving demand for ICs.

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