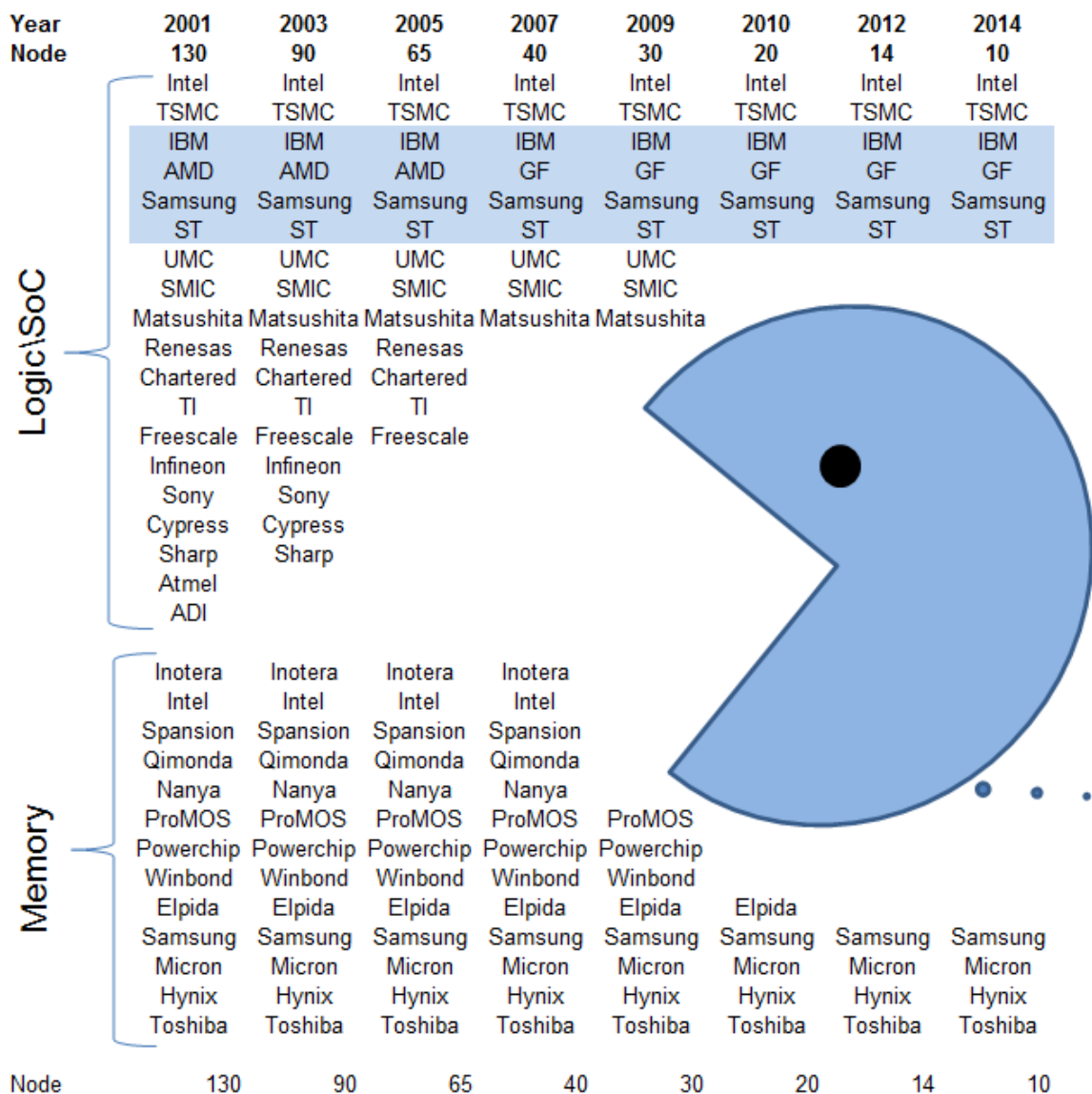


The Chip Insider®

February 22, 2013 – *From the Front Lines: Consolidation in the Semiconductor Industry.*

Consolidation in the Semiconductor Industry is strange because of the way the industry has been bifurcated between IDM and Fabless, Logic and Memory. The IDM base has been shrinking for years in the logic space and even the memory space. It is true that there are lots of linear/MEMS fabs out there, but they are not at the leading edge and hence are not relevant at the leading edge.

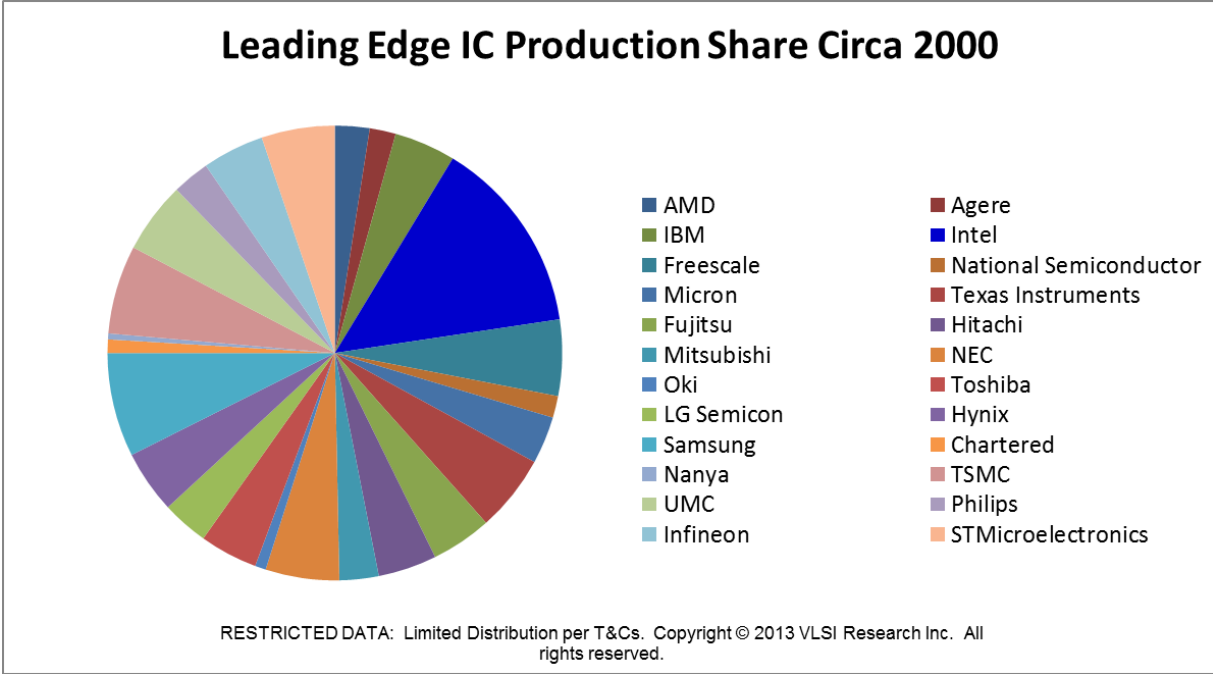
Companies Developing Processes with their own Fabs



Relevance in semiconductor manufacturing has always been about who's working at the leading edge. The number of suppliers in that space has steadily shrunk. The nature of it has also split. On the Logic/SoC side, Intel is the only independent IDM left. TSMC is the only independent foundry. By independent, I mean they still go it alone. IBM, GLOBALFOUNDRIES (GF in the chart for space reasons), Samsung, and ST Microsystems all work together either under the Common Platform or some other arrangement. It is interesting to highlight the value of coopetition in that they are the only ones outside of Intel and TSMC to stay in the game.

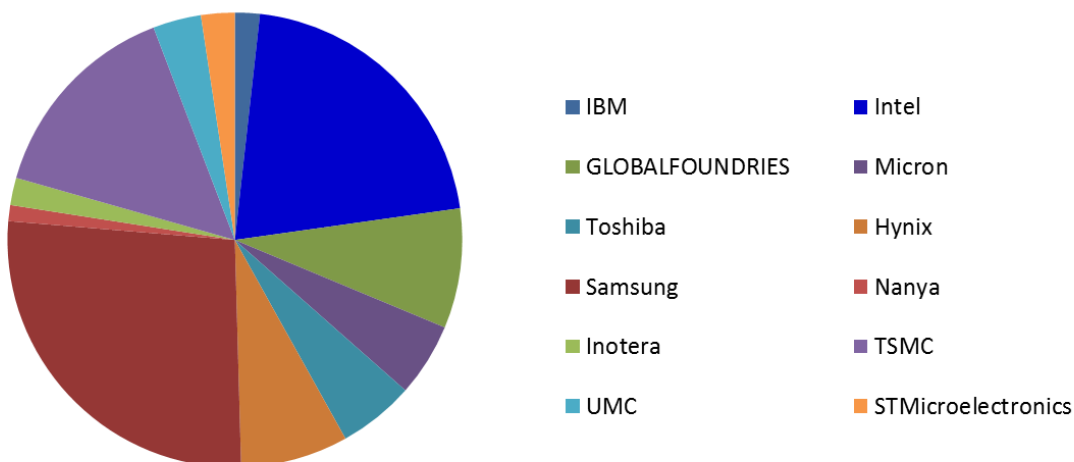
As for memory, Samsung, Micron, Hynix, and Toshiba are the ones left, all IDMs. It could be argued that Nanya and Inotera are still there, but both are under the Micron umbrella from a technology development perspective.

But manufacturing relevance at the leading edge is also defined by an ability to produce in volume and convert that production to revenues. If you look at the world that way, back around 2000, the world was highly fragmented with only Intel and Samsung showing signs of gaining a controlling share.



Today, the picture is entirely different. Intel and Samsung together hold almost 50% of leading edge production.

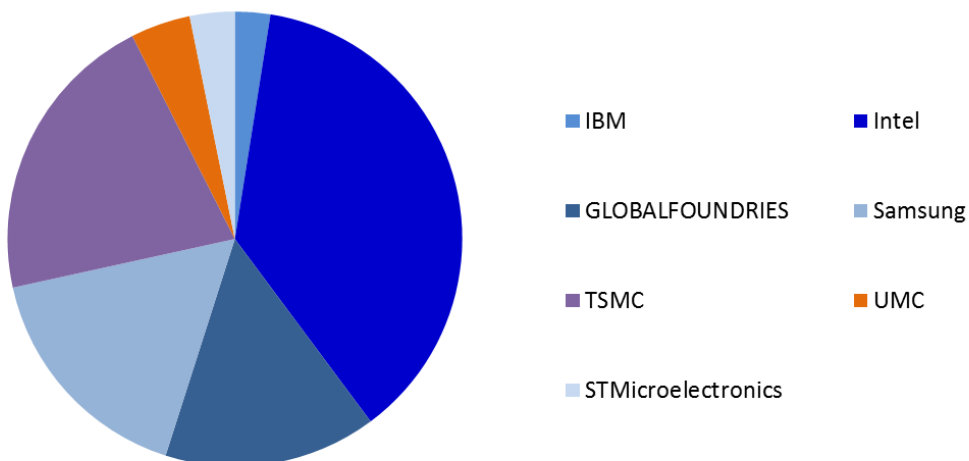
Leading Edge IC Production Share Today



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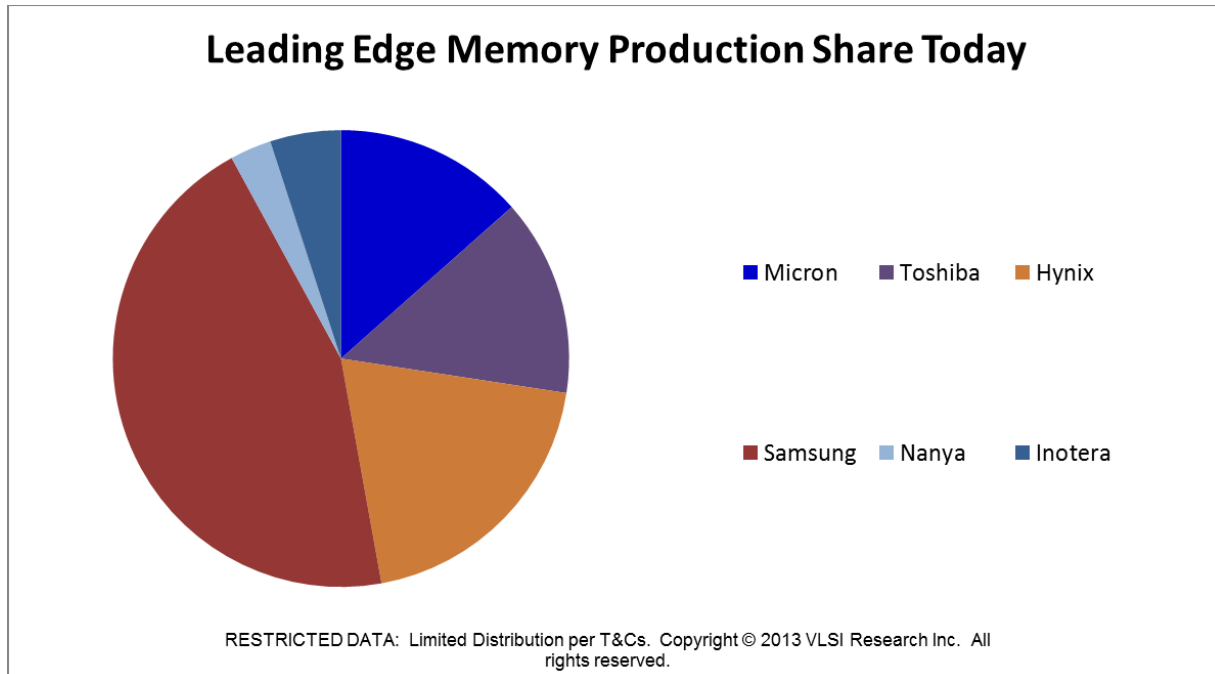
If you cut this down to just leading edge Logic and SoC, Intel is obviously the most significant player. Their ability to hit each node with a production ramp to match on a strict 2-year cadence has made them the most important player in this space. So is the share of IBM and its partners, which is roughly equal to that of Intel and twice that of TSMC. That really shows the value they achieved by working together.

Leading Edge Logic/SoC Production Share Today



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Turning to memory, the picture is very similar today. If one throws Inotera and Nanya in with Micron, there are only four memory groups left at the leading edge. It is important to do this, because these four have much more control over pricing and production. The result has been that the memory market has become fundamentally more stable.



The strategic impacts of this are clear:

- Those with fabs at the leading edge will have greater pricing power in the future
 - *Though many may not realize it yet*
 - *You can see this today with the big fabless players openly squirming over wafer pricing*
 - *Another sign is the decreasing volatility of memory prices*
- As those with fabs (TWF, pronounced ThWiF) learn to monetize their strategic advantage, profit share will shift down into the supply chain
 - *It doesn't mean that customers will stop driving for lower prices*
- Partnering and differentiation are more important than ever
 - *Missing a node means slipping behind in share*
 - *Customers that win over the longer term will orient to first-to-market over cheapest prices*
- Most new equipment will go to fabs in the United States, Korea, and Taiwan
 - *The U.S. will generally be first*
 - *Korea and Taiwan will trade places depending on where they are in the build cycle.*

- Consolidation of TWF (those with fabs) at the leading edge has likely reached an end
 - *Customers have capped the share they'll let memory producers hold*
 - *It is unlikely that Japan will let Toshiba drop out*
 - *It is unlikely that Europe will let ST Microsystems drop out*
 - *It is unlikely that Taiwan will let both Nanya and Inotera drop out*
 - *Both of which are wed to Micron*
 - *And they certainly won't let TSMC drop out*
 - *Micron is wed to Intel, so they are not falling out*
 - *ATIC, the state of New York, and IBM won't let GLOBALFOUNDRIES drop out*
 - *As for Intel and Samsung? They won't go away because they're just really good*
 - *Both are relentless*
 - *Both will evolve and adapt to the changing environment*

By G Dan Hutcheson

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