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ITRS V1.0: RIP 1992 - 2015

History: pre ITRS

Prior to 1992, the high technology industry was 'immature'. Each supply chain vendor (equipment, materials) would accumulate inputs from their customers which defined product roadmaps. Vendors cared little about accepting or supplying WIP to other vendors' products. But it became obvious to many that unless they were coordinated, sales potential would be limited. A coordinated 'support' plan could enable suppliers and their end customers to expand, grow more consistently and avoid major delays. This 'possibility' launched ITRS (an international technology roadmap) with a primary goal of aligning all the equipment/materials required to support a new silicon or packaging process capability.

ITRS: Life is better

ITRS did not care about a supplier's location, native language or other factors. It was available to any worldwide company that wanted to participate and did not state how each vendor would design, develop or price their products. But it did show how each silicon process (node) would require specific capabilities for yieldable and usable dice. While at VLSI Technology, I recall reviewing the ITRS report when it was updated every two years. I believe that ITRS V1.0 was created for an economic reason based on customer/supplier requirements. The high technology world had been tamed and produced generations of well coordinated development to support denser process nodes. Life was much better than 'pre-ITRS V1.0'.

Economic winds are changing...

Over the past few years, continuing to follow Moore's Law has led to economic disillusionment with the end users. More companies are investigating "More than Moore" alternatives. In October 2014, I wrote an opinion piece for Chip Design titled: "Are we at an inflection point with silicon scaling and homogeneous ICs?" In this piece, I extend the 'law' to 3D in which advanced packaging takes a leading role and silicon scaling take a less prominent role in future product development. Nothing earth shattering: homogeneous silicon economics is becoming prohibitive for all but a few companies. The

technologies/processes required to enable sub 20nm have either significant technology issues and/or significant costs. Either would cause many companies to search for viable cost alternatives. I was happy to see a recent blog written by Pete Singer “Reframing the Roadmap: ITRS 2.0”¹. ITRS is going to be remodeled based on today’s needs and not blindly following only a linear silicon scaling mantra.

Hats off to ITRS committee and THANK YOU!

Congratulations to the ITRS committee for learning from the past and applying it to today’s environment. For over 20 years, this committee has led cross-disciplinary, multiple industries to service end customers’ requirements. All of us have been on a predictable and exhilarating ride. The committee realizes the benefits for leading cross-disciplinary developments and recognizes that current economics are causing many customers to seek cheaper alternatives to homogeneous silicon. Rather than allowing ITRS V1.0 to ‘wither and die on the vine’, the ITRS committee proactively are changing and re-aligning their mission resulting in ITRS V2.0. From Singer’s blog it appears that the ITRS understands the changing economic environment and areas that will be critical for near and long term product development. Change is good.

Future...

I expect we will thank this committee in 2035 for all of their successes with their heterogeneous focus.

Notes:

¹ <http://electroi.com/petes-posts/2015/02/02/reframing-the-roadmap-itrs-2-0/>