

29th Year of Publication

siliconindia

(<https://www.siliconindia.com/>)

Home



News



(<https://twitter.com/SINewsUpdates>)

Chetan Arvind Patil Shares Insights On Global Semiconductor Industry And New Technological Advancements

(<https://www.facebook.com/siliconindianews/>)

By Parul, Correspondent (Monday, 15 July 2024, 06:30 AM) (<https://www.siliconindia.com/>)



(https://www.instagram.com/siliconindia_india_edition/)



Semiconductors are the fundamental building blocks of contemporary technology, driving everything from satellites to cell phones and creating the framework for the digital era. With its rapidly growing technological sector, countries equipped with the right semiconductor resources are well-positioned to become major players in the semiconductor business as the need for semiconductor technology continues to soar on a

[says-chetan-arvind-patil-nid-22925/-cid-1.html](https://www.siliconindia.com/news/general/optimizing-semiconductor-product-development-chetan-arvind-patil-nid-22925/-cid-1.html)) and **Part 2** (<https://www.siliconindia.com/news/general/optimizing-semiconductor-product-development-chetan-arvind-patil-on-yield-testing-and-industry-impact-nid-230185-cid-1.html>) of this semiconductor insight series previous interview articles on Silicon India.

Q1: What are the current trends shaping the global semiconductor industry?

Patil: The Artificial Intelligence field is reshaping semiconductor companies' perception of semiconductor products. It requires them to cater to different customer types for high-performance AI-ready data centers and low-power silicon chips for Edge AI. This shift is affecting both FAB-LESS and Pure-Play semiconductor companies, as well as IDMs with internal design/manufacturing capacity, as they need to adjust their semiconductor roadmap accordingly. The semiconductor industry is undergoing a global rebalance due to the pandemic's semiconductor manufacturing capacity crunch. Countries lacking capacity are implementing incentives and policies, resulting in a more balanced supply chain in 2030, distributed across continents and countries.

Q2: What role does the Asia-Pacific region assume within the global semiconductor industry concerning the introduction of new semiconductor products and technology?

Asia-Pacific area is the world's most crucial semiconductor belt. As of today, more than 80% of the world's semiconductor manufacturing is catered by the Asia-Pacific region. This clearly showcases how reliant the world is on the manufacturing prowess of this region. On top of this, the semiconductor design is also picking up and slowly has started to challenge the established design-dominated AMEC and EU regions. In all, Asia-Pacific is certainly ahead in semiconductor manufacturing, but a lot of work also needs to be done on RnD and re-skilling of talent to keep up with future global workforce demand.

Q3: How advancements in technology, such as EUV lithography, chipsets, and heterogeneous integration, are influencing new silicon product introduction?

Patil discussed the impact of technological advancements on silicon product introduction, emphasizing the transformative effect of extreme ultraviolet lithography in semiconductor manufacturing. This leads to higher precision and miniaturization, but also high costs, consolidating ultra-advanced node manufacturers.

Chiplets and heterogeneous integration are revolutionizing the semiconductor industry by enabling modular design approaches, improving performance, removing silicon area constraints, increasing design-to-manufacturing flexibility, and reducing time to market for new silicon products, leading to companies like NVIDIA, AMD, and Intel developing performance-oriented XPU's.

Q4: What measures are the countries of the world taking to ensure that they can produce semiconductors on their own?



semiconductor ecosystem. Patil hopes to create similar corridors in the Asia-Pacific region, which already leads in semiconductor manufacturing, equipment, and raw material segments.

Q5: Why is it crucial to concentrate much on the yield and quality of any new silicon chip?

Patil also stressed that all the new silicon chips developed should aim at maximizing yield, quality, reliability, and testing. These factors are crucial in making certain that the chip delivers optimal functionality, adheres to industry specifications, meets the target business case, and is capable of enduring rigorous use in practical situations. Through the increased focus on these parameters, various companies are in a position to offer superior products that are likely to gain the confidence of the end-users and therefore foster the growth of the semiconductor industry. On top, when it comes to the introduction of new silicon products (new silicon chips) and technology (like node and package types), these parameters can make or break the solution, mainly the yield, as lower yield can severely hamper the ROI and profitability.

Q6: What are the skills needed to be part of a silicon validation team?

Patil emphasizes that apart from the fundamentals of semiconductor device engineering, to join a silicon validation team, one needs strong skills in validation flow and techniques (ATE to Bench), debugging, and analysis. Proficiency in programming languages like Python and C, knowledge of ASIC design and verification, familiarity with lab equipment, and excellent problem-solving abilities are crucial. Strong communication and teamwork skills are also essential.

About ChetanArvindPatil

ChetanArvindPatil is currently a Senior Product Engineer at NXP USA Inc. and has a proven track record of developing silicon devices used in mobiles, industries & automobiles by leveraging his NPI/NTI skills. Connect with him on his **website** (<https://www.chetanpatil.in/>) and **LinkedIn** (<https://www.linkedin.com/in/chetanarvindpatil>)

ON THE DECK

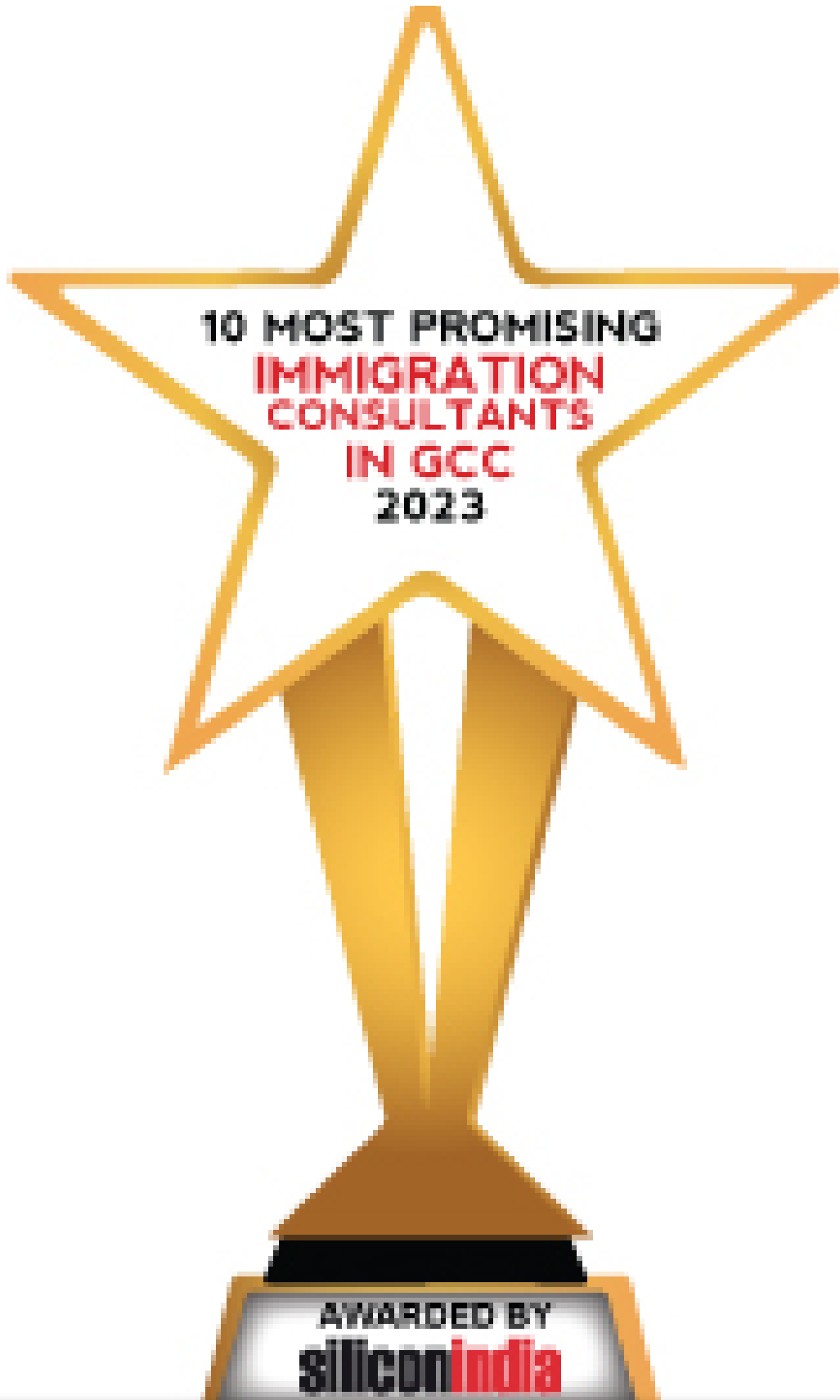




(<https://www.siliconindia.com/magazine/us/november-2023-issue.html>)

The Future Of The Workforce: Investing In... (<https://www.siliconindia.com/magazine/us/november-2023-issue.html>)





© 2024 siliconindia.com All rights reserved. **Privacy Policy** (<https://www.siliconindia.com/privacy-policy/>)

