Meet Keysight EDA’s Common Platform Integrating Manager: Q&A with Alexander Petr

Behind Keysight’s innovations in EDA software are experts like Alexander Petr, PathWave Software Solutions (PSS) Common Platform Integrating Manager. We spoke with Alex via Microsoft Teams from his office in Calabasas, CA to learn more about his background and vision for EDA technology.

Q: Let’s start with a bit about you – what got you interested in a tech career, where did you go to school, and what did you do before Keysight?

Alex: I grew up in Germany, near Berlin. Personal computers have always intrigued me, watching CPU designs advance according to Moore’s Law while RAM grows bigger and faster. I was keen to enter a university at the leading edge of electronic engineering, so I chose the Dresden University of Technology. In my studies with different chairs, I worked for Prof. Dr.-Ing.habil. Michael Schröter, one of the forefathers of compact device modeling, and that became my emphasis as well.

An industry recruiter placed me at X-FAB, and I moved to Plymouth, UK, for two years working on device characterization and analog mixed-signal process design kits (PDKs). I’m a bit of a globetrotter, and it was an excellent opportunity to see beyond what a Ph.D. program could offer. I became the device modeling group manager and moved back to Dresden with X-FAB for seven more years.

Q: What brought you to Keysight, and how long have you been here? What’s the most exciting thing you’ve worked on so far?

Alex: I joined Keysight in August of 2017. In my role at X-FAB, I was a power user of Keysight tools, both test and measurement systems and EDA software while building workflow solutions, for example a 24/7 measurement framework. I provided continuous feedback on where issues were and what types of solutions were needed. One day I joked with Keysight field sales teams that if Keysight had a job for me, let me know, and they soon did.
My unique perspective on Keysight products from both sides – as a customer and a developer – guides what I do now. I started out as a scrum master as we transformed from waterfall to Agile development. We've refreshed the user interface, added key features working with product owners, and targeted many customer requests, including some I made from my X-FAB days. I first moved up as a device modeling manager, then into this new integrating manager role.

**Q:** Congratulations on your new role as Common Platform Integrating Manager. It looks like it encompasses many different things. Tell us about that and how it shapes the EDA business.

**Alex:** As the name implies, the key point is “common platform.” There is not a single product in the market that can cover the whole solution, which is ultimately each customer’s workflow and the standards and tools they use to get the job done. Customers typically need more than one Keysight product. How do those work together? How do they enable customers to succeed? Are we anticipating and delivering what customers are asking for? We’ve developed a strategy to cut through all the different platforms in the Keysight EDA portfolio, enable workflow interconnectivity and create a foundation-level virtual solution. I’m a big fan of collaboration, and we have five teams working together, two existing teams and three new ones to improve scalability:

- Learning Products (LP), the team responsible for customer-facing documentation and education.
- Quality assurance (QA) always has a high priority in making customer experiences near-perfect.
- DevOps, a new team developing, improving and coordinating shipments in the CI/CD process.
- AI/ML is an area we are leaning into, pulling efforts from dedicated product teams together.
- Workflow enablement both internally and externally, leaning into Python APIs for connectivity and interoperability.

**Q:** Let’s dive a bit into how this works. Where do the requirements for these teams come from?

**Alex:** I can summarize that in one word: Agile. We have a scrum master driving the squad, including the product owner from marketing, a QA person, a LP person, and developers. Professional service teams close to customer issues join the squad in some cases. Short two-to-three-week sprints bring in achievable features and deliver tangible, shippable results. It’s helping us move more quickly and deliver higher quality, building customer loyalty and improving our ability to engage new business.
Q: And an AI initiative, that’s fascinating – we’ve seen pockets of features, but there’s more potential?

Alex: Absolutely. There are compact models, circuit models, table models, empirical models, and behavioral models – all reflecting what something does in the real world so it can be simulated. Physics are getting more complex. Conceiving a model and writing equations or rules covering everything is difficult. But AI follows a data-driven approach, with more stable neural networks, without writing much code. We started with an artificial neural network (ANN) model in IC-CAP. The fun part is these are portable models, ready for Keysight PathWave ADS or other SPICE simulator technology to consume.

\[ I_d = I_{d}^{ANN} (V_g, V_d, T, W, L) \]
Q: What do you think is lacking in EDA right now? How can Keysight address these opportunities?

Alex: Data management is still a big challenge. Teams are distributed around the globe, they have different equipment and tools in characterization labs, and there’s a lot of overhead and problems getting the right information to the right people. Databases give you places to put data, but still, one must look at the workflow and how that data is used – and the more complicated the process, the bigger the challenge.

Then there is the cloud. It’s powerful, but is it secure? Does it integrate with other pieces of the platform in the workflow? What about IP protection? We’re just getting started with cloud EDA implementations, and our teams anticipate and work through many concerns before we put solutions into a customer’s hands.

And there is the whole area of digital twins, which is a big opportunity, and there is already a lot going on within Keysight. I’m excited because I can see the long-term vision, and when we deliver everything planned for the next few years, it will transform how complex systems are designed and tested.

Q: In closing, if you had three wishes for Keysight developing and deploying software?

Alex: We’ve talked about enabling solutions; that’s my first one. Cross-platform development is critical to scaling our business. The second is better industry collaboration – we must account for all-Keysight and mixed-vendor solutions. The third is smoother workflows. I see our efforts at Keysight as building bridges, providing solutions and workflows customers can reliably base their businesses on for success.

Visit our web site to learn more about Keysight EDA’s leadership team.