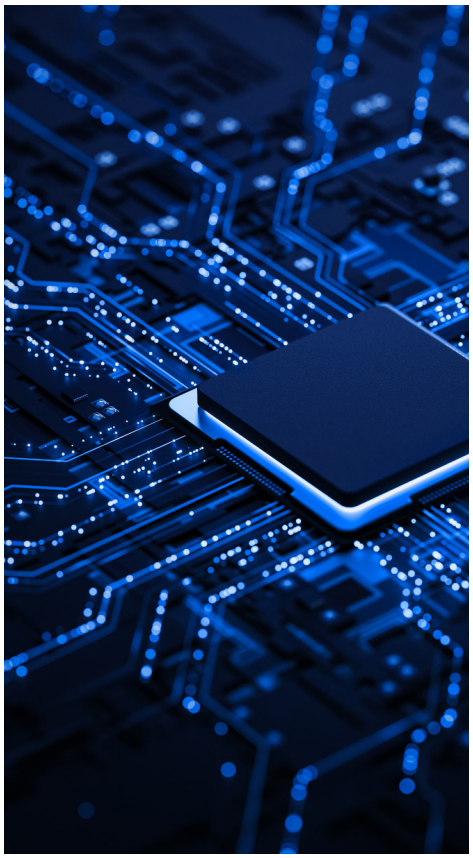
Case Study

Virtual Reference Platform Evaluation for SoC Development

A top-tier global provider of industrial automation and semiconductor technology needed to assess the readiness and scalability of a Virtual Reference Platform for enabling SoC design, software bring-up, and early validation. The engagement delivered actionable feasibility insights and a structured roadmap to de-risk adoption and accelerate future SoC development initiatives.



THE CHALLENGE

Evaluating platform readiness and feasibility for complex SoC virtualization

The company required a comprehensive assessment of its Virtual Reference Platform to determine whether it could effectively support SoC prototyping and application development initiatives. This assessment needed to evaluate platform architecture, toolchain integration, and modeling capabilities while ensuring alignment with realworld semiconductor development workflows.

Key challenges included limited visibility into the virtualization readiness of existing IP blocks, gaps within current modeling workflows, and uncertainty around achievable fidelity levels - particularly the trade-offs between functional accuracy and timing accuracy. Technical sophistical was centered on integration challenges across hardware and software interfaces, dependencies on third-party IP, and varying simulation environments. This complexity required a focus on data quality, infrastructure readiness, and the platform's ability to model complex behaviors such as non-linearities and parasitic effects.

THE SOLUTION

Comprehensive platform evaluation and roadmap for SoC virtualization

The Judge Group led a structured evaluation of the company's Virtual Reference Platform, beginning with a detailed architecture review

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followed by an assessment of tooling, workflows, and system integration points. The team analyzed virtualization feasibility by defining appropriate fidelity levels, identifying modeling risks, and recommending incremental, low-risk adoption approaches.

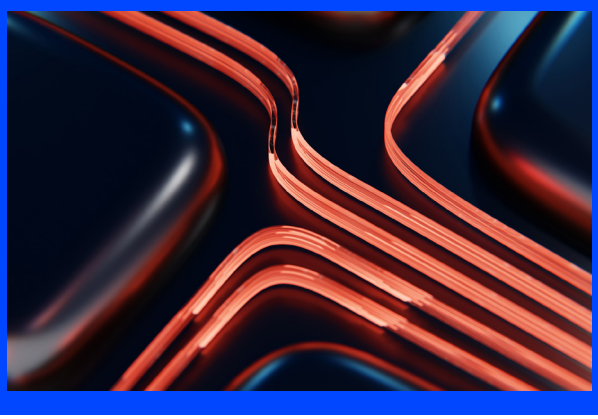
Priority use cases were identified and evaluated to assess feasibility, risk, and long-term value. Judge also conducted a risk and opportunity analysis to highlight areas for automation, reuse, and workflow optimization. Based on these findings, Judge developed a phased roadmap, outlining execution strategy, resource requirements, and effort estimates to support future SoC modeling and virtualization initiatives.

THE RESULT

Clear feasibility insights, reduced risk, and defined path for SoC virtualization

The assessment provided the company with a comprehensive understanding of its platform architecture, toolchain maturity, and overall virtualization readiness. Critical gaps and risks were identified early, enabling informed decision-making and reducing uncertainty during downstream implementation phases.

With clearly defined use cases and a structured, phased roadmap in place, the company gained a practical path toward scalable SoC virtualization. The engagement established a strong foundation for faster software bring-up, earlier validation, and more efficient adoption of virtual-platform–based semiconductor development in future execution phases.



Ready to accelerate SoC development and reduce risk? Connect with Judge today to explore what's possible.

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