

## LEVERAGING ARM VIRTUAL HARDWARE TO DESIGN, DEVELOP & TEST END USE CASE APPLICATIONS FOR AI-DRIVEN SOCS

A leading Systems-on-Chip (SoC) developer for security cameras partnered with The Judge Group's Arm Virtual Hardware Center of Excellence to accelerate the development of its AI-driven SoC. By virtualizing key components and leveraging AWS services for a streamlined CI/CD pipeline, they achieved rapid iteration, reduced time-to-market, and significant cost savings. This collaboration resulted in high-performance security cameras with advanced features like Live Object Detection and Facial Recognition, positioning the client as a market leader.



### THE CHALLENGE: Entering the market swiftly

A leading SoC developer for security cameras needed to speed up the development and deployment of their fourth-generation AI-driven SoC. Integrating advanced video analytics and hybridizing components like CPUs, Video Codecs, and ISPs required rapid iteration and early testing of new features and performance metrics. Traditional post-fabrication testing was time-consuming and costly, delaying the product's market entry.



### THE SOLUTION: Streamlined Integration

The company partnered with The Judge Group's Arm Virtual Hardware (AVH) Center of Excellence (CoE) to accelerate SoC development by virtualizing and simulating custom-built components like CPUs, Video Codecs, and ISPs on AVH. To enhance development and testing, the team integrated custom ML applications into the AVH, featuring real-time Live Object Detection and Facial Recognition with Custom Alerts.

Additionally, AWS services were utilized to streamline the CI/CD pipeline. Key AWS tools such as Graviton4, Lambda, SageMaker, CodeDeploy, CodeCommit, and CodeBuild managed continuous integration and deployment processes. Docker containers on Amazon ECR ensured consistency across environments, while S3

provided storage. This robust infrastructure enabled rapid iteration, seamless integration, and efficient deployment, equipping the AI-driven security cameras with cutting-edge technology and reducing time-to-market and development costs.



## **THE RESULT:** **Pioneering the Future of Security Technology**

Judge delivered a rate of speed and level of industry expertise that exceeded the company's expectations. By partnering with Judge, the company benefitted from expanded search resources, tools, and highly skilled recruiters, yielding quick and efficient results. As a result, the company overcame its scheduling delays and met its project deadlines. The Judge team filled all 65 roles across various functional areas of the company's business, including technology, and helped the company cut hiring time in half. Judge also provided ongoing support, coaching, and training to the new employees, ensuring productivity and performance.

By simulating the entire SoC, Judge's AVH CoE facilitated a robust and comprehensive development process that significantly reduced time-to-market. This approach ensured that new features and complex integrations were rigorously tested under real-world conditions early in the development cycle. The ability to iterate rapidly and deploy at scale addressed the critical need for a reliable and scalable development platform. Consequently, this solution enabled the SoC development leader to swiftly deliver high-performance AI-driven security cameras with integrated advanced video analytics and hybridization capabilities, maintaining their competitive edge in a fast-evolving market.



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