

II-VI with Cadence Cloud Environment on AWS HPC



Executive Summary

[II-VI](#), a global leader in engineered materials, optoelectronic components and optical systems, onboarded a new system-on-chip (SoC) development team and set up a comprehensive design environment in just two weeks. To achieve this aggressive timeframe, the company engaged [Cadence](#), the leading electronic design automation (EDA) supplier. Through the deployment of a [Cadence Cloud Environment on Amazon Web Services \(AWS\)](#) and [AWS high performance computing \(HPC\)](#), Cadence helped to quickly set up and optimize the team's design automation flow and productivity tools. The combined performance of AWS HPC and end-to-end Cadence flow ultimately accelerated the time to market for the II-VI integrated circuits (ICs), empowering the II-VI engineers to generate an unprecedented competitive edge.

A rapid, all-in-one design flow solution with Cadence on AWS HPC

Cadence jumpstarted the team's design flow by supplying licensing, a ready-to-use, EDA-optimized and secure virtual private chamber (VPC) on AWS; an end-to-end chip design software portfolio, and a reliable IP. Cadence also maintained the cloud infrastructure and provided administrative assistance that was essential to the team's rapid pace. Cadence and their support team could immediately access II-VI's environment to resolve any issue with the software or the infrastructure, which was critical to speed up II-VI's development cycles.

Powering an adaptive and resilient work environment with Cadence on AWS

With a history of successful collaborations, the II-VI engineering team trusted Cadence to realize their design goals. The team preferred Cadence over competitors for its comprehensive approach to design tools, the support they received, and the powerful way Cadence harnesses the adaptive, scalable platform on AWS. "The cloud infrastructure requirements for system and IC design vary as a design progresses from concept to a realized product. For the last several years, Cadence and AWS have partnered to optimize cloud infrastructure and services necessary for the needs of EDA and CAD tools as well as customers' design flows," says Carsten Heinelt, Senior Business Program Manager at Cadence. The flexibility and reliability of the infrastructure also meant that the engineering team was able to work from home long-term and add High Performance Computing (HPC) and storage capacity as their needs changed. Their collaboration and product development cycle remained stable through the COVID-19 pandemic.



About II-VI

II-VI boasts a diversified portfolio of integrated solutions for applications in industrial, communications, aerospace and defense, life sciences, semiconductor capital equipment, automotive and consumer electronics.

"Every minute of idling is a waste of resources and presents a greater risk of missed market opportunity. That's why the rapid pace of Cadence is so important."

- Dr. Lee Xu, Sr. Vice President, Transceivers Business Unit, II-VI Incorporated



“Cadence and AWS have been working together for several years and have supported production usage of our cloud offerings across the globe...we both have a culture of committing to customer success and that has resulted in synergistic collaboration to assist customers like II-VI.”

- Carsten Heinelt,
Cadence Senior Business
Program Manager

From EDA vendor onboarding to design team productivity in two weeks

The comprehensive end-to-end tools and Cadence-managed Cloud solution was installed and implemented in the AWS HPC cloud with unprecedented speed. Within two weeks of deploying the Cadence solution, the II-VI engineering team was well into their design work. In the fast-paced field of optical chip design, the speed with which Cadence implemented the solution imparted a significant competitive edge, pushing II-VI well ahead of competitors in market readiness. The pace also reduced costs and improved efficiency at II-VI. “Every minute of idling is a waste of resources and presents a greater risk of missed market opportunity. That’s why the rapid pace of Cadence is so important.” says Dr. Lee Xu, Sr. Vice President, Transceivers Business Unit, II-VI Incorporated.

Reliable security solutions for highly sensitive data

At II-VI, innovative chip designs are integral to success. The ISO 27001 security-certified cloud solution at Cadence and its rigorous security framework provided an unprecedented level of protection for II-VI’s highly sensitive data. II-VI relied on Cadence security as its chip data was transferred to external foundries for manufacturing. This enhanced protection increased Cadence’s value to the engineering team, as well as the broader company.

The combination of Cadence and AWS HPC transformed II-VI’s position in the marketplace by accelerating the productivity of its design team, in-house product development, and market delivery. II-VI plans to expand its partnership with AWS and Cadence for future product designs.

About Cadence

A pivotal leader in electronic design with over 30 years of experience, Cadence delivers software, hardware, and IP that turn design concepts into reality.



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