SYNOPSYS®

SUCCESS STORY

EFFECT Photonics Improves Time to Market for DSP ASIC Design Using Synopsys Cloud

"To support our newly acquired ASIC development business unit from Viasat, we were looking for sustainable, scalable EDA and infrastructure resources that are up and running within few days, so that design engineers can start ASIC design quickly. Within a few weeks, we saw a 20% improvement in engineering productivity."

~Russell Fuerst, VP-Digital Signal Processing, EFFECT Photonics

EFFECT PHOTONICS

Business

EFFECT Photonics, with headquarters in Eindhoven, The Netherlands has 130+ people across five offices globally. EFFECT Photonics is about **"Where Light Meets Digital,"** delivering highly integrated systems for optical communications to address the ever-increasing demand for bandwidth and faster data transfer capabilities. We leverage our technologies to offer compact form factor solutions with seamless integration, cost efficiency, low power, and security of supply. By leveraging established microelectronics ecosystems, we aim to make our products affordable and available in high volumes to address the challenges in cloud and AI, access-ready coherent solutions and 5G and beyond. Please learn more about us at www.effectphotonics.com and follow us on LinkedIn.

High Level Challenges/What Made us Look at Cloud Solutions?

- **NO infrastructure resources and dedicated staff to manage it,** thus leading to exploration of cloud solutions
- Experienced ASIC team, **had not used cloud for design development**
- **Limited Availability of EDA tools** – implementation, verification, synthesis, static analysis, and power signoff
- **Where to start?** Which cloud service providers (CSPs) and/or EDA partner(s)?

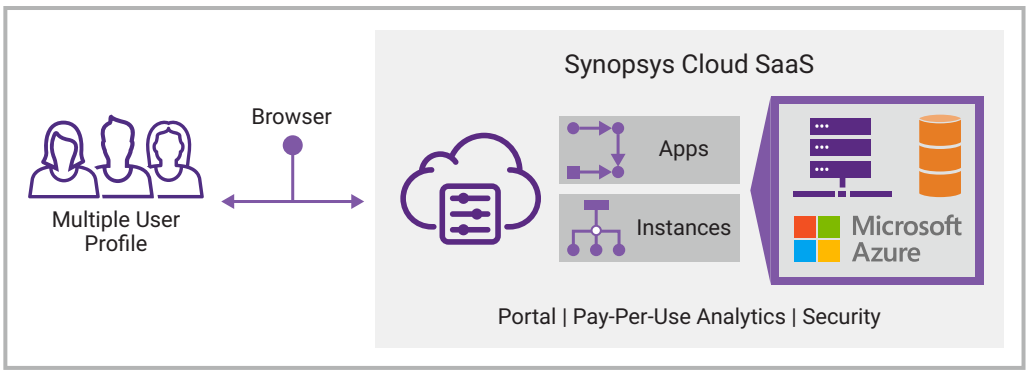
Selection Criteria	CAD	ENGINEERS
WANTS (must have)	Design environment up and running within few days	Easy access to design environment, compute, and EDA
	Minimal downtime, designers cannot be idle	Complete support for ASIC flow
NEEDS (nice to have)	User, license access and security control capabilities	No frequent changes to utilities in design environment
	Easy monitoring and adjusting of hardware resources	Early access to the design environment to flow flush

"In order to start the evaluation and select our partner for ASIC development, we broke down our challenges into needs and wants and defined them based on CAD and engineers perspectives. Synopsys Cloud SaaS solution exceeded on all of these requirements by offering a carefully thought through complete end to end chip design environment."

~Jeffrey Mogensen, Principal ASIC Engineer, EFFECT Photonics

Synopsys Cloud: Bringing EDA Flows, Compute, CAD/IT Management all Together

We started off with the Digital Instance solution on Synopsys Cloud SaaS providing a complete end-to-end digital implementation flow. This helped us jumpstart the design implementation process within a week. Synopsys demonstrated capabilities of the Verification Instance and the ASIC team, despite using 3rd party verification tools for over 6 years, decided to migrate the entire setup to work with Synopsys verification tools. Synopsys support was instrumental and ensured no major changes were needed for setup and testbenches. Finally, the RTL to signoff power analysis tools demonstrated excellent power estimation capabilities. Having the entire EDA and infrastructure solution available through Synopsys Cloud checked all the boxes for us, noted Jason Sheplak.



Benefits for CAD

Synopsys Cloud offers a plethora of features to increase the productivity of a CAD admin by providing capabilities to seamlessly manage EDA and hardware resources required at various stages of chip design. All the below features minimize the overhead to manage projects and design teams in an extremely simplified and effective way to strike out a balance between cost and/or time-to-results. In nutshell, CAD admin is fully equipped to support dynamic needs of the project and cater to needs of designers to boost their productivity, said Jason Sheplak, Senior ASIC Design Engineer.

- Quickest way to start and maintain without a dedicated IT team with an environment uptime > 99.95%
- Access to on-demand, unlimited EDA tools and cloud infrastructure for assigned global users
- Provision for assigning multiple security layers depending on user profiles
- Extremely flexible, able to deploy additional EDA and hardware resources within minutes
- Real-time analytics for EDA license and hardware usage for each user and deployment
- Real-time hardware monitoring across various hosts, e.g., disk space, CPU usage
- Fine-tuned governance control to manage EDA and infrastructure usage for users and projects

"EFFECT Photonics' vision is to unlock the power of light to make a difference in people's lives. To realize this vision, EFFECT Photonics acquired the Coherent Digital Signal Processing ASIC business from Viasat to enable light and digitally powered solutions sustainable, affordable, and scalable. We needed infrastructure and CAD/IT resources to support this new development team quickly and jump-start our ASIC design. After doing exhaustive evaluations of multiple cloud and EDA vendors, we found the Synopsys Cloud SaaS solution is the one-stop shop for complete end-to-end ASIC development. It was the clear winner, exceeding our needs and wants."

~Jason Sheplak, Senior ASIC Design Engineer, EFFECT Photonics

Benefits for Engineers

Synopsys Cloud helps engineers to focus on the design by:

- Accelerating EDA environment bring-up in minutes
- Removing license constraints with FlexEDA business model
- Quick support to debug results by removing need to package and upload testcases. Synopsys support teams can be directly added in the design environment
- Easy access to EDA and Synopsys Cloud documentation
- Pre-optimized and pre-configured end-to-end EDA flows
- Access to 3rd party global freeware applications, e.g., LibreOffice and SlickEdit
- LSF/Jenkins/Execution manager for regressions with alerts to Microsoft teams
- Seamless replication of existing design from on-Prem to SaaS

Synopsys Cloud removes bottlenecks that can hamper engineering productivity. Designers can fully focus on design and engineering tasks rather than worrying design environment setup, EDA, Infrastructure resources, said Matt Nimon, Principal Engineer-DSP Team.

Key Takeaways

- Comprehensive EDA flow for implementation, verification, and signoff with the Synopsys Cloud infrastructure providing a jump-start for ASIC design
- FlexEDA Pay-Per-Use (PPU) licenses, allowing the flexibility, scalability, and elasticity for EDA tools, and compute infrastructure.
- Complete solution delivered through a browser-based UI provide capabilities for project, user management and insights about usage analytics

"With the FlexEDA business model providing unlimited, on-demand pay-per-use EDA by the minute, our designers can focus on the quality of their designs and accelerate time to results. With complete license management automation, taking care of license servers', installation, auto-scaling capabilities has never been easier. ASIC Development in the Cloud is here, and thanks to Synopsys, it is accessible to all."

~Jason Sheplak, Senior ASIC Design Engineer, EFFECT Photonics

About Synopsys Cloud

Synopsys Cloud combines the availability of advanced computing and storage infrastructure with unlimited access to EDA software licenses on demand so you can focus on what you do best—design chips—faster. With cloud-native EDA tools and pre-optimized compute options, an extremely flexible business model, and a modern user experience, Synopsys has reimagined the future of chip design on the cloud that doesn't disrupt proven workflows.

The Synopsys Cloud FlexEDA business model offers two licensing options: pay-per-use (PPU) and cloud subscription license (CSL). PPU is an industry-first, true usage-based licensing approach for EDA tools. Synopsys Cloud FlexEDA provides access to unlimited, on-demand EDA software licenses which is a transformational change compared to traditional EDA software licensing models. With FlexEDA, many Synopsys tools are now available for use by the minute, providing customers with the granularity they need for peak usage bursts in the cloud. This helps reduce time to results significantly and deliver a better-quality design ahead of time. Users can choose from two deployment options: Bring-Your-Own-Cloud (BYOC) and Software-as-a-Service (SaaS). Synopsys Cloud offers the flexibility to use either one or both deployment options, depending on customer requirements.

Synopsys Cloud also offers unique solutions for specific scenarios, such as the Hybrid Solution, which enables seamless bursting of EDA workloads from on-premises to cloud with integrated scheduling, automated job splitting and bursting, and real time bi-directional incremental data synchronization. This automates the entire process without having users to do any lift and shift, thereby enhancing the overall productivity of chip designers. Similarly, Synopsys Cloud ChipSpot enables utilization of spot virtual machines for running high memory EDA workloads with extreme reliability, helping designers save up to 75% on compute costs.