

Shift Left: Cloud as the Technology Platform to enable faster verification

Presenters:

Rajiv Malhotra, Director, IT, AMD

Peeyush Tungawat, Enterprise Cloud Architect, Google Cloud

Sashi Obilisetty, Chief Architect, Silicon Solutions, Google Cloud

Format: Lecture

Silicon design is getting more complex, but time-to-market schedules are shrinking. Design teams have to do more with the same number of engineers. Companies engaged in designing chips are finding it challenging to absorb the increasing complexity while meeting schedule demands.

Inherent benefits of the cloud, such as elasticity, fault tolerance, and security can be successfully leveraged by design teams. For example, a regression that takes two days, can be designed to complete in under two hours, by ensuring that adequate number of cores are provisioned at the right time and then torn down.

Verification is full of embarrassing parallel solutions that can utilize the benefits of scale. In fact, verification is the most compute-intensive task in the chip design process. For instance, formal property verification can utilize the seemingly limitless cores on the cloud to run more formal engines simultaneously (and thereby solve more properties). It is evident that design teams will benefit from access to better machines, more cores and low-latency infrastructure provided by public clouds.

What you will learn:

1. Why consider Google Cloud Platform (GCP) to run EDA workloads? We will talk about relevant aspects of Security, Compute, Storage and Networking available in GCP for EDA
2. Bursting to GCP - How can companies “burst” to GCP for peak demand? We will discuss foundational pieces of set up and share recommended architectures

3. How standard workload management solutions such as LSF, Univa, and Slurm work with Google Cloud
4. Details about real-world use cases and learnings: Setup, migration, performance, high-availability, ML/AI workloads in chip design. How customers can be better educate themselves and incorporate risk mitigation policies
5. See a demo of an end-to-end frontend verification setup showing how a bursting setup can significantly enable peak demand and lead to accelerated time to market

Details on presenters:



Rajiv Malhotra

Rajiv is Director, IT at AMD where his team supports and manages all compute resources required to execute AMD's R&D projects. His team is responsible for optimizing the IT infrastructure for EDA flows, including both on-prem and the public cloud. As the first consumer of AMD's products, his team is also responsible for the "AMD-on-AMD" program to narrate and promote the performance, value and use models for AMD's products to AMD's customers. In his role he also manages AMD's datacenter and the long term compute and data center strategy. Prior to joining AMD, Rajiv was at Cirrus Logic, managing the CAD, Layout and Design Methodology teams. Rajiv has a Ph.D. in Systems Engineering from the University of Texas, Arlington.



Peeyush Tungawat

Peeyush is an Enterprise Cloud Architect at Google Cloud. He focuses on making semiconductor customers successful with Google Cloud and leads initiatives within Google to enable customer digital transformations. He works as a trusted advisor with Google's strategic customers on creating a vision and roadmap for EDA on Google Cloud. He holds a Master's degree in Computer Science from the University of Nebraska - Lincoln and a Bachelors in Electronics Engineering.



Sashi Obilisetty

Sashi Obilisetty is Chief Architect, Silicon Solutions, at Google Cloud. In her current role, she drives the technology, partnerships and ecosystem needed to make chip design on cloud pervasive. Sashi has over two decades of experience in the EDA. Previously, she was at Synopsys for eleven years, where she was involved in several verification products (simulation, coverage, formal verification) and more recently, led the AI/ML charter for Synopsys. Sashi has also founded two startups in the EDA domain. She holds a Bachelor's degree in Electronics and Communication Engineering from BIT, Mesra and a Master's degree in Computer Engineering from UMASS, Amherst.