NSITEXE Develops Multiple RISC-V Based Custom Processors for Autonomous Driving SoC with Synopsys' ASIP Designer

"We were on a tight schedule to develop five complex custom processor models for our multicore data flow processor. By using ASIP Designer and the RISC-V processor models provided with the tool as a starting point, we were able to meet functionality and performance requirements while reducing development time by 50%."

NSITEXE specializes in designing and supplying semiconductor IP blocks specific to the automobile and industrial automation spaces. This includes IP and services for its Data Flow Processors (DFP) for customers including automotive tier-1 suppliers and designers of industrial applications and smart household appliances. DFPs enable various applications such as next-generation automotive systems with autonomous drive, robotics, factory automation, and IoT. Executing on this strategy, NSITEXE establishes an innovative design flow aiming for agility and efficiency.

- Develop a virtual prototyping solution for its DFP platform targeting autonomous vehicles and connected cars, featuring five application-specific instruction set processors (ASIPs)
- Reduce development time and cost for multiple ASIPs
- In-house processor model development from scratch was not feasible because of tight turnaround time and limited resources

- ASIP Designer

- Developed five specialized custom processor models, while reducing design time and number of resources by 50%
- Processor model design was accelerated by starting from RISC-V ISA models provided with ASIP Designer, extended by custom vector extensions
- Automatic generation of software development kit (SDK) and seamless integration of the processors' instruction-set simulators into a SystemC-based virtual prototyping flow enabled efficient system-level verification for this multicore design