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Verification Technology, Inc.

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Ensuring Safe and Compliant LSI Development

Since its establishment in 2003, Verification Technology Inc. (Vtech) has been engaged in business centered on LSI design and verification technologies. Offering expert consulting services, Vtech advises clients on how to obtain functional safety certification or build the foundations to comply with functional safety standards in the LSI development process. The company specializes in LSI (ASIC, FPGA) development compliance for a variety of applications, including automobile, medical devices, industrial robots, and smart factories.

"Compliance with functional safety standards is crucial for LSI embedded in mission critical products and applications. We help clients achieve the highest quality LSI development compliant to functional safety standards by leveraging technology to assess where the safety bottleneck is in the entire LSI circuit," says Hideto Takeuchi, CEO of Vtech. As all documents generated based on the functional safety standards require traceability, Vtech helps clients with the same while simplifying and minimizing documents. "We propose a simple and minimalistic LSI development process to clients and create sample documents so that they can obtain the certification without our support," Takeuchi comments. In terms of RTL design and verification, Vtech supports clients with the calculation of the fault coverage rate using fault simulators like Synopsys or Cadence, which are becoming standard tools in the FMEA process. The company also familiarizes clients with these tools.

While other design companies tend to specialize in certain application areas that leverage LSI, Vtech sets itself apart by quantitatively and qualitatively verifying LSI designs for a variety of applications. With its robust functional safety certification support services, Vtech has helped different companies achieve their goals faster and more efficiently. In one instance, Vtech catered to a client building welding robots. In the fabrication process at their manufacturing site,
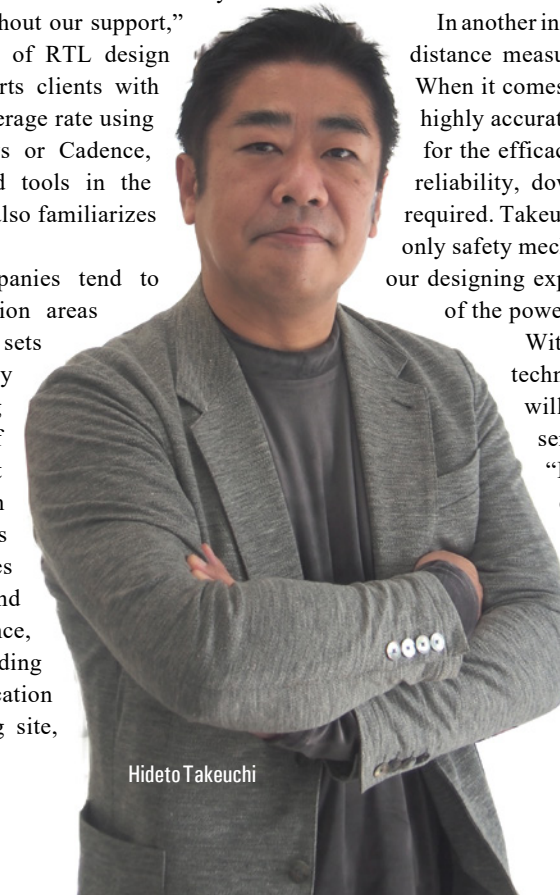
safety has become as important as the robots' processing accuracy and capacity. Since more system controlling functions are composed of CPU and LSI, the client's engineers

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had to have not only the knowledge of functional safety but also experience in LSI designing. Vtech deployed its group of engineers that had both skills, so that the client could process the project without any delay and release their product much earlier than their competitor companies.

In another instance, Vtech helped a client in developing distance measurement sensors for automotive LiDAR. When it comes to Advanced Driver-Assistance System, highly accurate detection and recognition are important for the efficacy of LiDAR sensors. In addition, safety, reliability, downsizing and cost reduction are always required. Takeuchi mentions, "We proposed the client not only safety mechanism but also circuit downsizing due to our designing experience, which resulted in the reduction of the power consumption up to 30 percent."

With an aim to introduce higher-quality technologies from Japan to the world, Vtech will continue to offer and improve its services to best fit the needs of every client. "I believe that clients accept Vtech's company culture of continuously aiming to serve new markets, where they have difficulties with the technologies that they cannot acquire. Especially executives are impressed by how we always try to work on innovative and challenging themes," concludes Takeuchi. SR

Hideto Takeuchi