Press Release

Socionext Employee Received Friendship Award at the 45th Annual EOS/ESD Symposium & Exhibits

Contribution to Enhanced SoC Reliability through Improvements to Accuracy of ESD Design

[Yokohama/Japan. December 21, 2023]
Socionext Inc. today announced that its paper entitled "Consideration based on ESD applied waveform in High-Speed IF using T-Coil" was highly acclaimed and recognized with the Friendship Award when presented at the 45th Annual EOS/ESD Symposium & Exhibits held at the Riverside Convention Center (California, USA) between September 30 and October 5, 2023.

Achieving high levels of quality and reliability is an important requirement when developing large System-on-Chip (SoC) devices for automotive, data center, and networking applications with increasingly advanced in functionality and performance.
Accordingly, when developing the high-speed interfaces (PCI Express and USB, etc.) used for input and output on SoCs, it is essential that they are designed for high robustness to electro-static discharge (ESD) as well as high-speed.

Socionext has made progress on the extremely important objective of improving ESD design accuracy by developing an ESD design technique that utilizes high-frequency circuit simulation and by using test chip measurements to evaluate its suitability.

The paper reported some of the outcomes of this technology development, contributing to improvements in SoC reliability by first identifying the pitfalls in existing ESD design techniques, then elucidating their mechanisms and specifying the ESD design policies to be used henceforth.

■Summary of paper■

Title: Consideration based on ESD applied waveform in High-Speed IF using T-Coil

Synopsis: While the T-Coil circuit can reduce the effect of parasitic capacitance of the ESD protection circuits, instances have been reported of internal circuit damage resulting from mutual induced voltage. In this paper the study conducted using a test chip fabricated by cutting-edge CMOS technology discovered that the very fast transmission line pulse (VF-TLP) measurements widely used for ESD design deliver more pessimistic results than the charged device model (CDM) measurements used for compliance testing, and determined the reasons for this.
Care is needed when performing ESD design as T-Coil circuits are a new instance of where TLP measurement and ESD measurement do not give the same results.

Winner : Teruo Suzuki（Principal Engineer, Technology Development Division, Global Development Group, Socionext Inc.）
Hideki Kano（Core Development Division, Global Development Group, Socionext Inc.）

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Photo :

45th Annual EOS/ESD Symposium & Exhibits「Friendship Award」

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This paper was awarded Best Paper at the 2022 RCJ Reliability Symposium in Japan, and it is the practice for the RCJ Reliability Symposium and the EOS/ESD Symposium to each invite the other's best paper and, as such, the Socionext paper has served to facilitate technology exchange between Japan and the USA.

About Socionext Inc.

Socionext Inc. is a global SoC (System-on-Chip) supplier and a pioneer of a unique "Solution SoC" business model through decades of industry experience and expertise. Socionext contributes to global innovation in advanced technologies including automotive, data center, networking, and smart devices. As a trusted silicon partner, Socionext delivers superior features, performance, and quality that differentiate its customers' products and services from their competition.

Socionext Inc. is headquartered in Yokohama, and has offices in Japan, Asia, United States and Europe to lead its development and sales activities. For more information, visit https://www.socionext.com/en/.