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An introduction to the Accellera Functional Safety Working Group Standardization effort

With the increasing compute power becoming available in newer semiconductor technologies, more and more applications are implemented using electrical and electronic (E/E) devices. For safety-critical applications, failure of correct functioning of these systems poses a risk of physical injury or damage to the health of people or the environment. Functional safety is defined as 'freedom from unacceptable risk' and it relies on active systems implemented to detect and/or correct potentially dangerous hazards caused by malfunction of E/E systems.

Additionally, functional safety management requires 'safety activities/operations', resulting in documentation called 'work products', performed during the lifecycle phases of product development for functional safety. The work products and safety activities/operations are required to share the common data among them. How do different work-products and safety activities share data? How do multiple entities in the supply chain of product development exchange safety information? How can we maximize the benefit of automation from EDA tools for automatically creating and maintaining these work-products? How can we keep traceability among the different work products?

Accellera Systems Initiative formed a working group of functional safety practitioners and experts from the industry to develop a standard that will provide a standardized definition of the Functional Safety data exchange to improve Automation, Interoperability, and Traceability of the implementation of Functional Safety guidelines and best practices during the lifecycle. The standard plans to capture a data model, language, or format to exchange data seamlessly among functional safety work-products and across layers of the supply chain.

This workshop presents some of the challenges in the industry for managing the exchange of data related to functional safety and then the goals and mission of the Accellera functional safety working group towards a new standard to address those challenges. It will also report some of the discussions done to harmonize the best practices and terminology across the industry and the initial work to capture a common data model to enable efficient interchange of data representing functional safety concepts across the diverse lifecycle development tool chain and among organizations engaged in distributed developments. The workshop will conclude exploring a few directions connected to the development of the FS data format standard that the group identified during the working sessions.