

System design methods evolve around solving the constantly developing challenges embedded system designers face. Modern system design methods are required to handle changes in the specification during the later stages of the design process as well. These changes can affect multiple steps of or even the entire workflow. Manual changes in all these steps and the synchronization of the several source documents are prone to errors. Using a single source file and high level of automatization is a good solution to this problem. Every change is made on this single source file and the other steps are done automatically. The registers of a system can be described in multiple formats, and different tasks require different formats. These formats can be generated from a single source file.

The thesis work introduces a couple of register description methods. It details the IP-XACT standard and an IP-XACT-based development environment, the ARM Socrates DE. This design environment is complemented by my contribution, i.e., by the developed generators, which generate the output files required by the other stages of the design process.