

## **SOIS EDS Compiler**

SOIS Electronic Data Sheets is a new standard for expressing the behaviour of a device in machine readable format. The SOIS EDS format is Turing complete and can be treated as a programming language. The SEDSC project explored the development of a compiler for electronic data sheets. The compiler emits simulation models targeting the TEMU simulator. Unlike the common approach of emitting C code, the SEDSC tool emits object code directly by emitting an intermediate representation based on MLIR. An MLIR-dialect for SOIS EDS has been defined, and this is successively transformed to LLVM IR which can be directly converted to assembly or object code.

The project validated the approach as a viable option for emission of simulation models from domain specific languages. The compiler was validated by converting some EagleEye SVF remote terminal units to EDS and rerunning the AOCS acceptance test suite with the new models in the loop.