

Semantic correct transformation of IEC 61131-3 models into the IEC 61499 standard

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Abstract

This paper provides a possibility for a semantic correct transformation of existing IEC 61131-3 projects into the newer IEC 61499 standard. Based on a model driven development approach as well as proper concepts and rules this paper describes a suitable way to overcome some semantical problems which occurred during the transformation process. Those semantical problems regard some differences between the libraries of IEC 61131-3 and IEC 61499 as well as the extraction of the actual execution sequence of IEC 61131-3 programs. Both issues are supposed to be solved by auxiliary transformations. One static transformation which converts IEC 61131-3 Function Blocks into Simple Function Blocks. And one project dependent transformation which extracts the execution order of IEC 61131-3 Function Block networks.