

5. Publishable Abstract

D2.3.3: Prototype tool for libraries, refinement and timing constraints specification

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ABSTRACT	Overview over Features of SpecEdit and its Integration into the MORPHEUS Tool Flow
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Context

This deliverable is part of the MORPHEUS project which is a european initiative financed under the 6th FP and addresses innovative solutions for embedded computing based on dynamically reconfigurable platform and tools.

MORPHEUS project aims at satisfying embedded systems new demanding requirements in terms of computing performance, cost-efficient development, functional flexibility and sustainability by developing a global solution based on a modular heterogeneous SOC platform providing dynamically reconfigurable computing completed by a software oriented design flow and a consistent toolset.

MORPHEUS is a 3-year project started in 2006 and gathering all the required expertises from several countries : academics, industrials, SMEs.

Aim of the deliverable

The deliverable D2.3.3 details the functionality of the tool SpecEdit. The report clarifies its positioning within the MORPHEUS tool set.

Content of the deliverable

SpecEdit is a framework to reduce specification efforts and to improve specification quality by providing an early verification capability based on simulation or formal techniques. Additionally it helps to capture parts of the specification information in a structured way for re-use in later system design phases. For this purpose it has a plug-in mechanism for task related assistants. The currently most interesting assistant supports the definition and the refinement process of ADeVA specifications.

In the ADeVA approach ideas similar to FSM concepts are used in a generalized way to describe control related functionality of the system. Additionally, refinement is a method to bring forward the specification to implementation. Starting at specification level, ADeVA descriptions are successively refined to reach synthesis level. This is done by addition of implementation details to the description like e.g. clock information.

Finally the SpecEdit description is converted to a CDFG based description and MADEO+ synthesiser takes over and generates bit stream data from the refined SpecEdit description. It can be said, that MADEO+ synthesizer is kind of a concentrator in the overall MORPHEUS flow. It receives CDFG descriptions from different sources (e.g. SpecEdit and SPEAR) and converts them to code for the reconfiguration targets.