



MORPHEUS

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

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ABSTRACT	This document is the abstract of the D2.3.3. It is available on the MORPHEUS public website
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This document describes the contribution of Lucent Technologies to WP2 of the MORPHEUS project, namely SpecEdit, a framework for specification purposes. The document addresses features of the tool and investigates how SpecEdit is integrated into the MORPHEUS tool set. SpecEdit is a framework for specification purposes. It has been designed in order to facilitate, and accelerate the specification process and to reduce the error rate of this task. The tool supports specifying people by providing an expandable set of specification assistants. Assistants in the SpecEdit perspective are interfaces which guide the user in terms of specific specification aspects like e.g. textual, timing or formal verification related facets. In order to cope with the latter point, which is of special interest, an assistant for ADeVA [3] is provided. ADeVA is a means for capturing control flow information in a simple way similar to finite state machine definitions. From these definitions models are generated in different output languages like VHDL, C and more. These models are used for simulation (executable specification) and formal verification in order to avoid design errors as early as possible in the system development process.

Typically systems are not developed from scratch, but proven sub-systems of previous developments are reused to reduce effort and the probability of errors. From the specification view this means that requirements have to be reused. For that purpose SpecEdit provides a powerful mechanism to reference (sub-) specifications of pre-defined specification documents or libraries. A library in this context is a collection of requirements which are used frequently in different designs. SpecEdit accompanies the system design process from specification via implementation to verification. From the abstract point of view this path is a refinement process. The principle of supporting this approach is based on inheritance, i.e. refinement level 'n' inherits all the features of refinement level 'n-1'. Specification aspects to be refined are overwritten in a consecutive step.

This document additionally discussed the way how SpecEdit can be integrated with the rest of the comprehensive MORPHEUS toolset. It showed that a natural connection between the model generation process on SpecEdit side and the MADEO tool on the other side exists. MADEO 'speaks' Smalltalk and thus, SpecEdit being expandable, a Smalltalk generator shall be added to SpecEdit.

