Abstract

In this paper, we present our approach for automatic SystemC code generation from UML models at early stages of Systems On Chip (SOC) design. A particularity of our proposed approach is the fact that SystemC code generation process is performed through two levels of abstraction. In the first level, we use UML hierarchic sequence diagrams to generate a SystemC code that targets algorithmic space exploration and simulation. In the second level of abstraction, messages that occur in sequence diagrams are implemented using UML activity diagrams whose actions are expressed in the C++ Action Language (AL) included in the Rhapsody environment from which a full SystemC code is generated for both simulation and synthesis.

Index Terms

Computer Science  
System Modeling
### Key words

<table>
<thead>
<tr>
<th>UML</th>
<th>SystemC</th>
<th>Sequence diagrams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity diagrams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action Language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simulation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>