Chapter 7: Conclusion & Future Scope

System level modeling and simulation is used to predict and optimize the design metrics early in the design and implementation stage of complex embedded system development. Simulation based approach is better than analytical and concrete level modeling approach because it is accurate and faster than analytical and concrete level modeling approach respectively.

Modeling and evaluation efforts are the major challenges of simulation based system level modeling environment is addressed by proposing and demonstrating the systematic system level modeling approach with algorithm of generating modeling guidelines and batch simulation setup. Proposed work demonstrated the system modeling using standard, parametric, analysis specific and simulation based system level modeling components. This work discussed about how to abstract the lower level details for system level modeling to achieve faster simulation. At last part of our work is explored systematic approach for simulation based system level modeling. In this work automation for component selection is introduced to avoid the long learning curve.

Here user has to select the required option, based on these selections system modeling steps are extracted. Batch simulation algorithm used to achieve the faster simulation. Batch simulation approach optimizes the effort of experimental setups for multiple simulations. After batch simulation post processing can be used to analyze the results. Entire approach is to optimize the system level modeling effort. Modular can select the right modeling components and modeling template in a short period of time. Hence with the help of this approach system level modeling and analysis can be done with less modeling effort, modeling time and with minimum modeling knowledge. Modeling templates are the available modeling frameworks i.e. simulation models build for specific analysis and application so that modular can refer or modify these models to get required system model.

Future scope of this work is to increase the number of modeling templates and integrating them as a part synthesis process from idea to system model. This synthesis automation is required to be accessible online because faster and large upgradation of synthesis frameworks can be possible in huge and fast manner. System engineer can get synthesized analysis specific simulation model through online by providing system details and modeling objective. On the other side system modeler can upload their models in the form of questionnaires lists.