Macro Cell Floorplanner

by

Christopher Berry

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Approved:

Professor Emeritus Kenneth Rose, Thesis Advisor

Professor James Lu, Thesis Advisor

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ABSTRACT

The basis for this thesis is to help fill in the blanks left from Pradiptya Gosh's original thesis and project dealing with a macro cell floorplanner. The documentation included in Pradiptya's thesis was written as a thesis and not as a user's manual and as such it can be difficult to learn to use the floorplanner. Also, since the thesis deals with the software design aspect of the program and not the user (interface) side of the program the information necessary to run and use the program is spread out throughout the document. We needed to learn how to run the tool and how to change the many input parameters so that the tool could be used effectively and efficiently and it became obvious that a user manual was necessary for this tool.

Other work done here is to allow the user to export data from the Cadence Design Framework Layout Editor (herein referred to as Cadence) and also to bring that data back into Cadence. The idea being that this tool is only a floorplanning tool, or aid, and not a design environment, so translation from and to a design environment is important. The basic process provided to generate the different input files from Cadence could be ported to generate files from other design environments.

There was a significant amount of work done in attempting to clean up the user interface for the floorplanner. The text that was printed at runtime and the formatting of the files were not robustly designed and it was found that when running on "real" designs that many conditions were not handled satisfactorily. It was also found that the file reading functions did not account for user error very well and they did not print satisfactory messages upon encountering an error condition.

Other parts of this thesis give a description of the basic floorplanning code and the important classes and objects defined and used. It also gives a basic overview of the algorithm, structure and potential updates that could be made based on current needs of the industry. As this floorplanner was originally written in 1996 it is out of date with what is available in the industry.

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