OpenRoad tool Bindkey addition

*Note: Sub-titles are not captured in Xplore and should not be used

Vishnu R
VLSI enthusiast
vishnu3366@gmail.com

Abstract*— OpenRoad *is an open-source EDA tool used for physical design of Integrated circuits. Upon usage of the tool, it has been observed some additions of Bindkeys on GUI can enhance the user experience on the tool.

Keywords*— *OpenROAD Flow Scripts, 24 hour RTL-to-GDSII flow, open-source tools, EDA tool, IC Design.

I. Introduction

OpenRoad is a Physical design EDA tool which can synthesize a design from its verilog file up to routed layout within 24 hours. Developers are aiming to make it a completely no human in loop tool, while providing an optimized results considering all the constraints. While the tool offers many useful features, it's user interface can be more keyboard driven interface than touch user interface. In this paper, I propose an improvement to the user experience of The OpenROAD Project tool by adding bindkeys on the Display Control of the GUI.

II. Related work

Usability and user experience are essential factors to consider when designing EDA tools. There have been many studies in the field of EDA tools and their user interfaces, which have led to the development of design guidelines and best practices. Some of the key considerations include the layout and organization of the tool's interface, the use of visual aids and feedback, and the inclusion of keyboard shortcuts and other input methods. Usage of bind keys can be observed in almost all the VLSI EDA tools available today. It reduces the user's operation time on the tool, which in turn results in a faster turnaround time for each design.

III. Improvments

Basically, bind keys are single/combination of keys in keyboard which are mapped to do a single/bunch of functions together which has more use cases to the user . To improve the user experience, I would like to develop a set of binkeys for the following functions on Display control, turning visibility on/off for all the layers together; controlling the visibility for metals, vias, Nets, Instances, Blockages, Tracks, Heat map and the timing Map individually, viewing Hierarchy Browser, Timing reports and directly viewing the settings. These all the listed functions and further are to be mapped to certain Keys in keyboard for quick access.

IV. Conclusions and recommendations

In conclusion, separately keeping these Bindkeys to modify these functions which otherwise could have done only in multiple mouse click and hovering will certainly improve the user experience and the handling time. This work can demonstrate the effectiveness of adding bindkeys for switching between various layers/ functions in improving the user experience of The OpenROAD Project tool. I recommend that these improvements be adopted and integrated into the tool's future releases to provide users with a more intuitive and efficient design flow.

References

[1] G. Eason, B. Noble, and I. N. Sneddon, "On certain integrals of Lipschitz-Hankel type involving products of Bessel functions," Phil. Trans. Roy. Soc. London, vol. A247, pp. 529–551, April 1955. *(references)*

[2] J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68–73.

[3] I. S. Jacobs and C. P. Bean, "Fine particles, thin films and exchange anisotropy," in Magnetism, vol. III, G. T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271–350.

[4] K. Elissa, "Title of paper if known," unpublished.

[5] R. Nicole, "Title of paper with only first word capitalized," J. Name Stand. Abbrev., in press.

[6] Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, "Electron spectroscopy studies on magneto-optical media and plastic substrate interface," IEEE Transl. J. Magn. Japan, vol. 2, pp. 740–741, August 1987 [Digests 9th Annual Conf. Magnetics Japan, p. 301, 1982].

[7] M. Young, The Technical Writer's Handbook. Mill Valley, CA: University Science, 1989.

IEEE conference templates contain guidance text for composing and formatting conference papers. Please ensure that all template text is removed from your conference paper prior to submission to the conference. Failure to remove template text from your paper may result in your paper not being published.