Experience of Using OpenROAD Flow Scripts on a ibex Design

Abstract— **In this paper, we present our experience using OpenROAD Flow Scripts on a ibex design.OpenROAD is an open-source electronic design automation tool flow that can provides an end-to-end design implementation solution for the digital integrated circuit industry.The OpenROAD Flow Project aims for automated-in-the-loop digital circuit design with 24-hour turnaround time.**

Keywords—OpenROAD Flow Scripts, RTL-to-GDSII flow, open-source tools, automated design, no-human-in-the-loop

I. INTRODUCTION

OpenROAD Flow Scripts(ORFS) is a powerful toolset that is an automated flow from RTL-GDSII flow. The tool enables full RTL-GDSII flow using open-source tools. The open-source tool will execute the flow from RTL-GDS flow without human intervention. In this paper, we describe our experience of using ORFS on aasap7 ibex design project aims to develop an open-source 24-hour no-human-in-the-loop RTL-to-GDSII flow.

II. DEFAULT RUN

Our experience of using ORFS on a asap7 ibex design project has been positive overall.We also faced some issues while doing the design process.it is taking more time to run the design. Sometimes we get unexpected design results because of no human intervention that requires careful analysis and debugging.

III.ANALYSIS

In those ibex design cell lists are more and buffer size is less testing for timing violations along all convincible paths at the cts stage and cell density in some areas at routing stage.

IV.MODIFICATION DONE

In the asap7 ibex design we can change the cells list and increase the buffer size at cts stage and change the metal layers at routing stage. We are able to achieve a design with good results.

V.EXPERIENCE OF USING ORFS

Our experience of using ORFS on a ibex design project has been positive overall. The use of open-source tools gives more flexibility and cost-effectiveness, the automation of the design flow reduces the time and effort required for the design process. We were able to achive a design turnaround time of less than 24 hours, which is impresive considering the complexity of the design.

We also faced some issues while doing the design process. Sometimes we get unexpected design results because of no human intervention that requires careful analysis and debugging.

VI. CONCLUSION

In conclusion, our experience of using OpenROAD Flow Scripts on ibex design has been largely positive. The use of open-source tools and automation made the design process easy. However, careful analysis is necessary to avoid unexpected results.

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