Exploring A* Search For Single and Multi Layer Routing

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Abstract—

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I. INTRODUCTION

II. RELATED WORK

III. METHODOLOGY

A. Motivation

Metal routing is a critical step in systems integration process, where each source is connected to its fan-outs using non-crossing metal. Routing in a modern chip, with millions or even billions of transistors, can be very complicated and cumbersome, so the manufacture process has moved to automatic routing.

Automatic routing is a very vast field, with several techniques being developed through time. Automatic routing involves lots of problems like finding shortest non-blocked path and VIAs in multi-layer routing.

Automatic routing techniques are always a trade-off between optimality and speed. Some techniques target execution time by reaching a sub-optimal solution. Others target optimal solution with very high execution time.

In this work, we seek a good balance between performance and optimality of solution by introducing the usage of A* search for automatic routing with a modified cost function.

B. Formulation

C. Baseline

D. Modified A Search*

IV. EXPERIMENTAL RESULTS

V. CONCLUSION

REFERENCES