

# Width-constrained Wire Sizing for Non-tree Interconnections

陳志瑋, 顏金泰

Computer Science & Information Engineering

Computer Science and Informatics

yan@chu.edu.tw

## Abstract

With the use of non-tree topology in signal nets, the delay issue in non-tree topologies has become an important problem. In this paper, based on the transformation-based timing analysis for a non-tree interconnection, an iterative wire-sizing approach is proposed to assign feasible widths onto the wire segments to minimize the timing delay in the critical path for a non-tree interconnection under a maximum-width constraint. Compared with the original non-tree interconnection with the assignment of minimum width, the experimental results show that our proposed approach achieves 15.6%, 19.6% and 22.1% of delay reduction on the average under  $0.36\ \mu\text{m}$ ,  $0.54\ \mu\text{m}$  and  $0.72\ \mu\text{m}$  maximum-width constraints, respectively.

Keyword : Non-tree, wire sizing, critical path