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Authors:

Manoj Kumar Majumder

B. K. Kaushik

S. K. Manhas

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Abstract

Carbon based nanomaterials such as metallic single walled carbon nanotubes (SWNT), multi-wall carbon nanotubes (MWNT), and graphene have been considered as some of the most promising candidates for future interconnect technology. In current deep sub-micron level technology, MWNTs have potentially provided an attractive solution over SWNT bundles. This paper presents a comprehensive analysis of propagation delay for both MWNT and SWNT bundles at different interconnect lengths (global) and shows a comparison of area for equivalent number of SWNTs in bundle and shells in MWNTs. It has been observed that irrespective of the type of CNTs, propagation delay increases with interconnect lengths. For same propagation

delay performance, the area occupied by SWNT bundle is more than the MWNTs for a specified interconnect length.

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Index Terms

Computer Science

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Key words

MWNT

Carbon nanotube
SWNT bundle

propagation delay

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