

Performance Analysis of Carbon Nanotube for VLSI Interconnects and Their Comparison with Copper Interconnects

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Abstract : This paper investigates the performance of the bundle of single wall carbon nanotubes (SWCNT) for low-power and high-speed interconnects for future VLSI applications. The power dissipation, delay and power delay product (PDP) of SWCNT bundle interconnects are examined and compared with that of the Cu interconnects at 22 nm technology node for both intermediate and global interconnects. The results show that SWCNT bundle consume less power and also faster than Cu for intermediate and global interconnects. It is concluded that the metallic SWCNT has been regarded as a viable candidate for intermediate and global interconnects in future technologies.

Keywords : carbon nanotube, SWCNT, low power, delay, power delay product, global and intermediate interconnects

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